



Rapid Review of Wellbeing Evaluation Research Using the Warwick-Edinburgh Mental Well-Being Scales (WEMWBS)

Commissioned by the What Works Centre for Wellbeing

Report prepared by Dr Jo Blodgett, Dr Aradhna Kaushal and Dr Fran Harkness
May 2022



ACKNOWLEDGEMENTS

We are grateful for the ongoing collaboration, support and advice from Margherita Musella, Nancy Hey, Joanne Smithson at the What Works Centre for Wellbeing (WWCW) and the Advisory Consultation Group:

- Ingrid Abreu-Sherer (National Academy for Social Prescribing)
- Tim Healey (Coventry City Council)
- Gregor Henderson (Independent Consultant and Adviser on Mental Health and Wellbeing)
- Prof. Jonathan Neelands (Warwick University)
- Mark Scott (Coventry City of Culture Trust)
- Dr. Neha Shah (Office for Health Improvement and Disparities, Department of Health and Social Care)
- Lucy Thorpe (Mental Health Foundation)
- Dr. Nick Zygouris (Maximus UK).

This work is funded by the National Lottery Community Fund.

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INTRODUCTION

The Warwick Edinburgh Mental Wellbeing Scales (WEMWBS) define mental wellbeing as the positive aspect of mental health¹. This multidimensional concept of affect and psychological functioning includes both the hedonic perspective, the subjective experience of happiness and life satisfaction, and the eudemonic perspective, which focuses on psychological functioning and self-realisation.² Building on previous scales, the scales were developed between 2005 and 2010 within UK public mental health settings for use in Scottish population surveys and for the evaluation of projects, programmes and policies that promote positive mental health.¹ The original WEMWBS, validated in 2007, consists of 14 positively worded questions measuring positive mood, interpersonal relationships and positive functioning, with response options asking the user how often they felt that way in the past two weeks.² A shortened version, SWEMWBS, was developed in 2010, which uses 7 of the 14 items and focuses on function-related questions rather than feelings (see Appendix A for complete scales).³

Fifteen years since their development, the scales are now used in a range of public health and voluntary sector settings and have been adopted across three UK countries to monitor mental wellbeing at the population level and develop policy. There is now a unique opportunity to assess the impact of different interventions on mental wellbeing by reviewing the evaluation literature that uses these scales. By conducting a rapid review, it will be possible to gain a better understanding of the key components that can improve wellbeing, identify evidence gaps, and inform future research and policy. The aim of this project was to conduct a rapid review of interventions to explore the use of WEMWBS and evaluate which interventions are the most effective at increasing wellbeing. Specifically, we aimed to answer the following research questions:

1. What evaluation research has been carried out to assess the effectiveness of programmes and pilots on mental wellbeing, as defined by WEMWBS?
2. What is the strength of evidence of the evaluation research?
3. What are the key findings from the evaluation research?

METHODOLOGY

Systematic reviews are considered the gold standard of evidence-based practice, providing the most rigorous and valid evidence base to inform clinical and policy guidelines and decision making.⁴ However, systematic reviews can be resource, time and cost-heavy and therefore, rapid reviews present a sensible alternative. Rapid reviews are defined as “literature reviews that use methods to accelerate or streamline traditional systematic review processes to meet the needs and timelines of the end-users (e.g. government policymakers, health care institutions, health professionals, and patient associations)”.^{5, 6} There are currently no standard methodological guidelines for rapid reviews, with several reviews showing that methods vary across studies.⁷ The Covid-19 pandemic has accelerated work in this area, and where possible, interim guidance published by the Cochrane collaboration has been followed.⁸

This rapid review was conducted over a short timescale (<3 months from search to report), following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.⁹ The study protocol was registered with PROSPERO (CRD42021288606).¹⁰

Eligibility criteria

Studies from peer-reviewed journals and grey literature sources were eligible for inclusion if they met the PICO (Population, Intervention, Control, and Outcome) criteria described below and outlined in Appendix B. Eligible populations included children and adults with no health or age restrictions. Studies were eligible if wellbeing was measured as a primary or secondary outcome both pre- and post-intervention. The outcome was total WEMWBS score, which could include the full 14-item scale or the 7-item scale. Additional inclusion criteria included the following: English language articles, records with sufficient detail to appraise the quality of the intervention study (e.g. conference abstracts and presentation slides were excluded), interventions taking place in the UK, and published from 2007 to November 2021.

Search strategy

In November 2021, we identified eligible intervention studies via three approaches: a traditional database search, grey literature search and Call for Evidence. Medline, EMBASE, CINAHL, PsycInfo and Web of Science were searched for all available articles from January 2007 to present. Iterative pilot searches were used to identify the most inclusive search strategies and revealed that a broad, inclusive search focusing on WEMWBS terminology was optimal. As many studies and reports did not include phrasing such as “intervention”, “evaluation” or “programme”, the search terms were not restricted by including them. The final search strategy combined different iterations of the WEMWBS acronym and scale name using truncation and wildcards as appropriate in each database (see Box 1); Appendix C outlines an example of a search strategy.

The same search terms were used to identify additional records in the following grey literature resources: NHS Evidence, Social Science Research Network, King’s Fund Library, the Health Foundation, the Mental Health Foundation and Google Advanced Search (first 100 Google records only). Additionally, all research papers on the Warwick Medical School WEMWBS page were screened.¹¹ Finally, the WWCW published a Call for Evidence that was widely shared via their

website, evidence newsletter, social media channels and further distributed by partner members of the wellbeing research community (see Appendix D).

Box 1. Search Strategy

*WEMWBS

OR

“Warwick?Edinburgh Mental Well?being Scale”

Note: “*” denotes truncation to allow for prefixes of differing lengths and “?” denotes wildcard i.e. one character to account for spaces or hyphens. This was adapted if needed across databases

Study selection

Database results were uploaded into Endnote and Rayyan, which were used to remove duplicates and manage the two-stage screening process.¹² In the first stage, 20% of all titles and abstracts were independently screened by two reviewers against the inclusion and exclusion criteria. Any conflicts were discussed to reach a final consensus decision. A single reviewer screened the remaining 80%. In the second stage of screening, two independent reviewers reviewed 20% of the remaining full-text articles, resolved any conflicts and a single reviewer screened the remaining 80%. Additionally, the second reviewer screened all full-text articles excluded by the first reviewer; this step is recommended by Cochrane to ensure that no evidence is missed during the rapid review process.⁸ If needed in either stage, a third reviewer was consulted to make the final decision. In the full-text screening stage, the exclusion reason was documented following a hierarchical list of six criteria:

- i. Non-English article
- ii. Insufficient detail (e.g. conference abstract, incomplete presentation slides)
- iii. No intervention
- iv. Did not use WEMWBS to measure wellbeing
- v. Did not measure WEMWBS pre- and post- intervention
- vi. Intervention based outside of the UK

Data extraction and critical appraisal

A single reviewer independently extracted data. To ensure accuracy and minimise any errors, a second reviewer checked the extracted data against the original document for 20% of papers and re-assessed any critical appraisal scores that were selected ‘can’t tell’ or ‘unsure’. A data extraction form was used to extract information on the following topics: record type (e.g. peer-reviewed paper, report), study sample (description, age, control group, randomisation), intervention (description, type, name), WEMWBS scale (7 or 14-item, modifications), WEMWBS scores (sample size, mean, standard deviation pre- and post-intervention for intervention and control groups), whether an economic evaluation was conducted, and critical appraisal of each study.

For studies that reported multiple post-intervention WEMWBS scores, the first post-intervention score was extracted, and it was recorded if additional WEMWBS measures were collected at longer-term follow-up. The WEMWBS scale asks respondents about their wellbeing over the previous two weeks, therefore post-intervention assessments that were captured <2 weeks after baseline were captured as a key limitation for synthesis. Where possible, the next ensuing timepoint (≥ 2 weeks) was extracted instead. WebPlotDigitizer was used to obtain data that were presented in graphs and not tables.¹³ If there was any missing information about the sample size, mean or standard deviation (SD), authors were contacted to ask for this information.

The What Works Centre for Wellbeing (WWCW) Quality Checklist: quantitative evidence of intervention effectiveness was used to appraise the quality of each included study and give an overall level of confidence in the findings. The framework and scoring system were developed by WWCW academics and the ONS based on the Early Intervention Foundation (EIF) Standards of Evidence¹⁴. The WWCW checklist assesses the quality of a study based on 10 elements: fidelity, measurement, counterfactual, representativeness, sample size, attrition, equivalence, measures, analysis, and interpretation of findings (see Appendix E for further details). The 10 elements of the checklist can be scored as either 1 (yes) or 0 (no, can't tell or N/A). As part of a previous review¹⁵, this scoring system was used to assign each study an overall level of confidence of low (0-2), moderate (3-6) or high (7-10).

Synthesis

A narrative synthesis was first conducted following guidelines established by Popay et al.¹⁶ to describe sample characteristics, intervention types, other components of data extraction and the critical appraisal findings. Next, intervention types were coded thematically and the impact of the interventions on wellbeing was subsequently described by sub-theme. Across all studies, the most commonly reported results for the impact of the intervention on wellbeing were mean WEMWBS scores, SD pre- and post-intervention, with most studies having no control group (described further in results section).

Therefore, random-effects meta-analyses of standardised mean differences (SMD), also referred to as Hedge's g ¹⁷, were conducted to examine pre- and post-intervention WEMWBS scores using the *meta* and *metaphor* packages in R. The use of SMD instead of raw mean differences (post score – pre score) allows studies using either the 7-item SWEMWBS or the 14-item SWEMWBS to be combined, thus maximising the evidence base synthesised in this review. Briefly, the SMD is calculated by dividing the mean change in score by the SD of the change score:

$$SMD = \frac{\text{Mean WEMWBS score}_{\text{post-intervention}} - \text{Mean WEMWBS score}_{\text{pre-intervention}}}{\text{Standard Deviation}_{\text{pooled}}}$$

Where there are at least four studies for a given subtheme, the aggregate SMD effect sizes are reported; 0.20, 0.50 and 0.60 correspond to small, medium and large effect sizes, respectively.^{18, 19}

Heterogeneity in a review refers to any kind of variability amongst studies. Specifically, clinical heterogeneity refers to variability in participants, interventions and outcomes, while methodological heterogeneity refers to variability in study design and risk of bias. Statistical heterogeneity is indicated by high variation in the confidence intervals of the SMD (e.g. individual studies do not

overlap) and is often a consequence of the aforementioned clinical or methodological variability.¹⁷ For each individual meta-analysis, is formally captured with the I^2 statistic, with >75% indicating considerable statistical heterogeneity.¹⁷

For studies where authors did not respond to requests for additional information or where the information was unavailable, we utilised approaches recommended by the Cochrane Collaboration for dealing with missing data in meta analyses (e.g. SD imputation, medians, ranges, interquartile ranges, etc.).^{17, 20} Due to inconsistencies in sample sizes pre- and post-intervention, group differences instead of individual differences were estimated.

RESULTS

Search results

After initial title-abstract screening (and removing duplicates) of the database search (n=1069), grey literature search (n=319) and Call for Evidence (n=64), the remaining records for the full text search numbered 473. A total of 228 records met all inclusion criteria; the hierarchical exclusion reasons for the other 245 records are provided in Figure 1. It was common to have multiple records that reported identical or duplicate data for the same sample and intervention. Therefore, to avoid duplicate evidence in the review, only the primary record (i.e. the study containing the largest sample size and/or providing most information) was included. Therefore a total of 209 studies were included across five main themes: Psychological (n=80)²¹⁻¹⁰⁰, Social (n=54)¹⁰¹⁻¹⁵⁵, Arts/Culture (n=29)¹⁵⁶⁻¹⁸⁴, Health Promotion (n=18)¹⁸⁵⁻²⁰² and Other (n=28).^{135, 203-229} Any supporting information from these additional records was used to supplement data extraction and synthesis where possible.²³⁰⁻²⁴⁶

Of note, 11 studies presented data for multiple interventions, including one study consisting of three intervention programmes¹³¹, and two studies presented data for opposing intervention users (i.e. teachers and students⁵⁷; mentors and mentees¹³⁸). The characteristics and subtheme analysis below is conducted at the study level (n=209), however when considering the summary of evidence, it was not appropriate to provide an aggregate score across differing interventions and users. Therefore, a total of 223 data points are used in the summary in Appendix F, with a further summary of control group differences (n=79) in Appendix G.

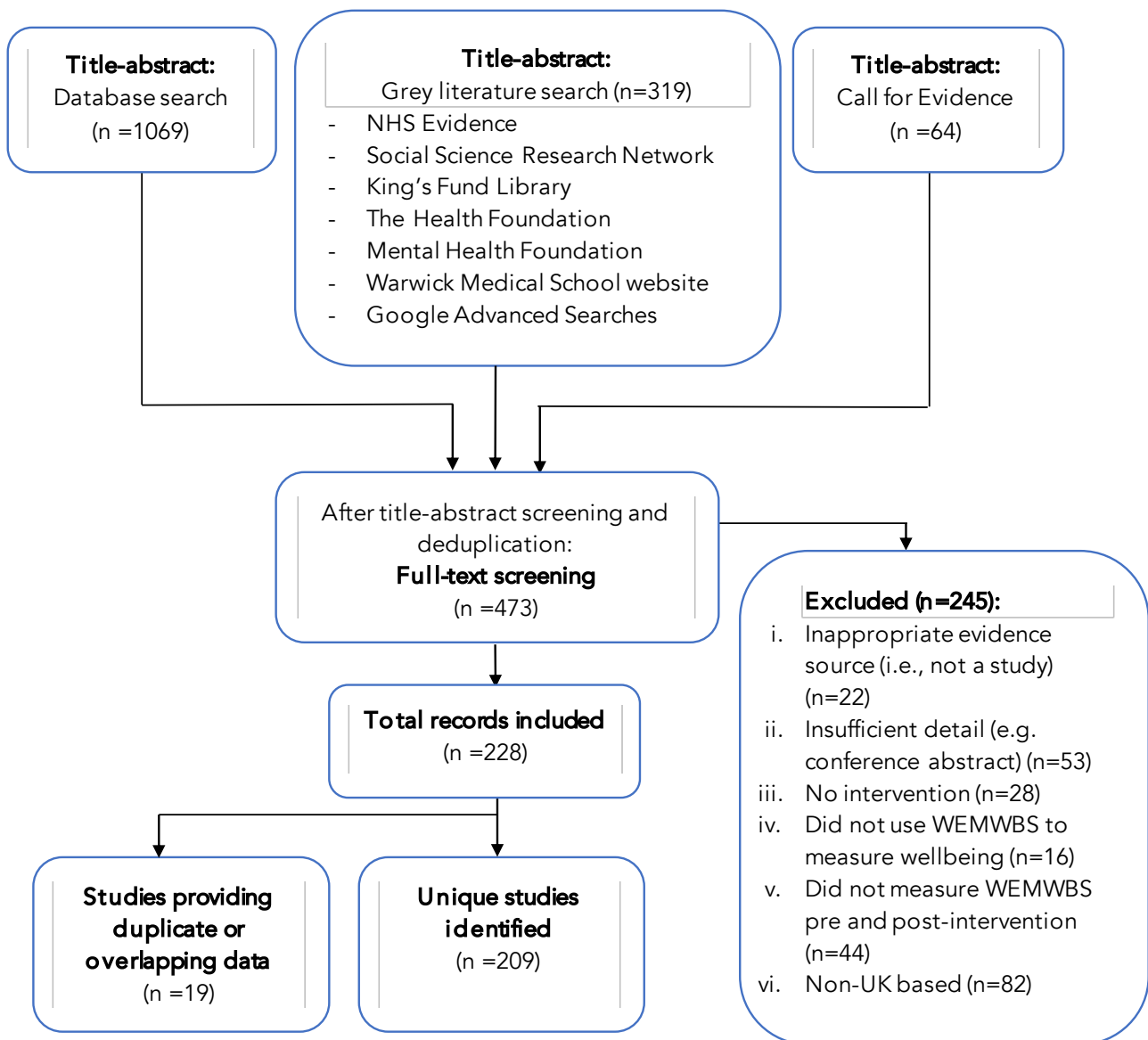


Figure 1. PRISMA diagram

Overview

Sorted by subtheme, the characteristics of all included studies are described in Appendices I1-I5; this includes sample characteristics, intervention name and description, effect on wellbeing (i.e. difference from pre to post intervention and if the intervention improved wellbeing compared to a control group) and the level of confidence in the results. An overview of the characteristics of included studies is provided in Appendix H. There were 150 peer-reviewed publications, 53 reports and 6 additional records that did not fit under either of these categories.

The majority of studies (n=175) included adults between the ages of 26 and 59, with a third of studies examining younger adults (n=76) and a third examining older adults (n=63). Approximately half of the interventions were delivered to healthy community-dwelling samples and over a third to individuals with mental health difficulties, ranging from those with undiagnosed symptoms of depression or anxiety to in-hospital patients with psychosis. Due to diversity in severity, diagnosis and description of clinical and mental health characteristics amongst studies, a summary count was

not derived and the characteristics for each sample is provided in the Appendices. Baseline sample size ranged from 4 to 4,942, with a total of 53,834 participants across all studies providing some WEMWBS data.

Of the 77 studies that had a control group, 44 studies randomised participants to the intervention or control condition (n=33 individual and 11 cluster). Thirteen studies used a wait-list control group, while 18 did not utilise any randomised nor controlled waitlist protocol. A total of 74 studies with a control group examined either the difference between post-interventions WEMWBS score in the intervention and control groups or the difference in WEMWBS change scores. There were five studies that examined multiple differences (n=2 with two groups; n=3 with multiple intervention), therefore the summary in Appendix G refers to n=79.

Most studies used the 14-item WEMWBS scale (n=145). Just four studies modified the WEMWBS scale; this is discussed in further detail in the critical appraisal section. Finally, 35 studies examined WEMWBS scores by various subgroups (e.g. age, gender, ethnicity), 66 studies assessed wellbeing at additional follow-up points and 38 reported results of an economic evaluation.

Critical appraisal

It was evident that the WWCW checklist (see Appendix E) overestimated the quality of the studies, with just one study scoring low (1%; 0-2 points), 54% scoring as moderate (n=111; 3-6 points) and 46% scoring as high (n=97). Therefore, it is valuable to explore this further by examining individual scale items of the scale and discuss aspects of study quality not captured by the critical appraisal framework. Due largely to the nature of the rapid review, the type of study included and the binary responses of scale items (e.g. yes vs no/can't tell), five of the ten critical appraisal elements were scored positive for >75% of the studies. First, 205 studies (98%) received 1 point for the 'Measures' scale as they used an unmodified WEMWBS scale, which met the criteria for using a measure that was standardised, validated and published independently of the study. The four modifications to the scale included reworded 'wellbeing check cards' targeted at 9-15 year olds¹⁷⁹, simplified language targeted at those with learning disabilities⁴⁶, a printing error that omitted one item⁶² and grouping of individual WEMWBS items along with other questions into 3 sections, where improved wellbeing was considered to improve only if respondents had an improved response in all questions in a section¹⁸⁰. Of note, several studies that were excluded during full-text screening used a modified WEMWBS at follow-up; they asked individuals to rate their change on each item from pre- to post- intervention at a single time point.

Second, 197 studies received 1 point for the 'Consistency'. As studies were eligible for inclusion even if wellbeing improvement was not a primary aim or outcome of the intervention, a positive score on this criterion reflected explicit findings and consistency between results and discussion. Very few studies claimed that an intervention improved wellbeing when it did not. Third, 'Fidelity' was high amongst 193 (92%) of the studies, with just 16 studies failing to clearly describe details of the intervention being delivered. Fourth, the most common analytical approach was consistent with that recommended on the Warwick Medical School website²⁴⁷: calculating and comparing means and standard deviations using a t-test. Eighty-four percent (n=176) either examined statistical differences in means or presented other appropriate statistical results (e.g. regressions). Finally, the

minimum 'Sample size' criteria required 20 participants to have completed the measures at both time points in each group; this was easily met by most studies (n= 159; 76%).

We now shift to the five elements of the appraisal with a lower distribution of scores. As the majority of studies did not have control groups, scores on 'Counterfactual' (n=57; 27%) and 'Equivalence' (n=52; 25%) were low. Most studies with control groups demonstrated similar characteristics between the control and intervention groups, however studies without a control group often failed to assess if the sample was representative relative to the target population. Therefore, fewer than half of all studies (n=101) received a point for being 'Representative'. Another key area of concern was 'Measurement' as many studies tended to analyse wellbeing scores in those who completed the intervention, ignoring any lost to follow-up. The final element of the critical appraisal checklist was 'Attrition' (n=108, 52%). Although a minimum of 35% completed pre and post-measures in most studies, it was concerning that many studies failed to report drop-out and did not compare characteristics of those who dropped out to those who completed the intervention. It is noteworthy that some studies had very low levels of attrition, including several with 100% completion rates.

There were a few other concerns identified during critical appraisal that are not captured by the scale. First, some studies used WEMWBS to assess interventions lasting fewer than two weeks. The scale asks about how respondents have felt in the past two weeks; therefore it is not a valid measure to capture changes over a shorter period. Some single session interventions (e.g. trishaw ride, dance class, etc.)^{188, 189} assessed wellbeing immediately before and after the session (<1hr). Another study had individuals fill out WEMWBS questionnaire before and after two sessions of transcranial noise stimulation, which occurred between 2 and 14 days.²¹³ These studies are therefore not included in the meta-analysis below. Another series of interventions assessed WEMWBS before and after a 5-day multi-activity course, however as scores were also collected at follow-up points beyond two weeks, it was included.^{193, 196} Another area of concern was the diversity with which studies dealt with missing data. While there is no formal guidance from the developers of the scale, studies often used mean imputation (average score of other items of the scale) with varying criteria on a minimum number of questions that must be answered (e.g. 80%, >5, >12). In the user guide attached to WEMWBS the developers warn that estimates should not be used if more than three items are missing a response; in that case the WEMWBS score should be set as missing.

Key findings by subtheme

Mapping of the interventions revealed 5 main themes of interventions, each with several sub-themes. These are listed in Box 2.

Box 2. Main themes and sub-themes identified

- **Psychological interventions (n=80)**
 - Resilience, wellbeing and self- management
 - Mindfulness
 - Psycho- education
 - Cognitive behavioural therapy (CBT)
 - Other therapies
- **Social interventions (n=54)**
 - Person- centred advice/ support
 - Parenting
 - Community and peer support
 - Social prescribing
- **Arts, culture and environment (n=29)**
 - Art
 - Culture
 - Environmental
- **Physical health promotion (n=18)**
 - Physical activity
 - Health promotion (diet or mixed)
- **Other (n=28)**
 - Funding
 - Targeted medical
 - Professional
 - Long term mental health recovery services
 - Other interventions

Appendix F summarises the number of studies which were included in the review, grouped by intervention type, indicating the number of studies where the intervention improved wellbeing as reported by the authors. Appendix G shows the same results but only for studies with a control group. The following section describes each theme and sub-theme in detail and synthesises the main findings across studies.

Theme 1: Psychological (n=80)

Resilience, wellbeing and self-management (n=18)

We identified 18 interventions that aimed to improve participants' resilience, i.e. maintaining/rebuilding wellbeing despite challenges, to improve self-management of wellbeing, or targeted at other specific aspects of wellbeing.²¹⁻³⁸ Of these, 14 tested if wellbeing significantly changed from pre- to post-intervention; 11 found that wellbeing significantly increased^{21-23, 25-29, 34-36}, while three found no significant difference^{33, 37, 38}. Just three studies had a control group, all of

which reported that there was no difference in wellbeing changes at follow-up between control and intervention groups^{25, 37, 38}.

Fifteen studies were included in the meta-analysis examining standardised mean differences pre and post-intervention (see Figure 2), demonstrating a large impact of these intervention on wellbeing (SMD= 0.72; large effect size). The two largest improvements in wellbeing were shown in the Reconnect to Innate Resilience course, consisting of six 90 minute online 1:1 guided sessions to improve and educate about resilience²¹, and a peer-facilitated four-week program in prisons focused on positive thinking, goal setting, managing wellbeing and behaviour, and developing a personal 'toolbox'.²⁸

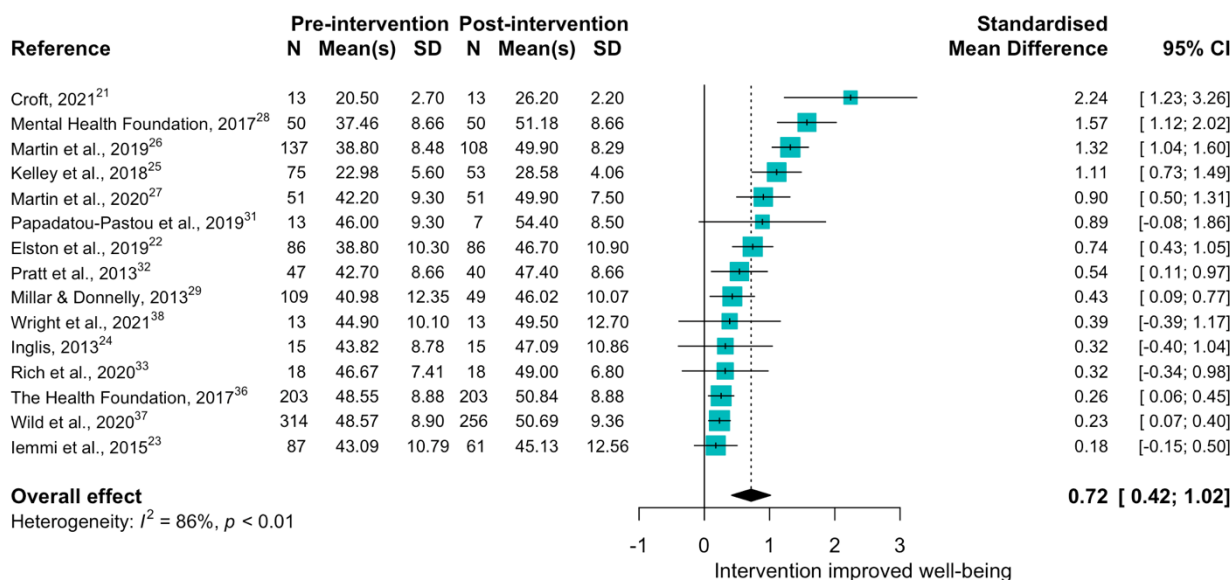


Figure 2. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 1: Resilience, wellbeing and self-management interventions. Change indicated by standardised mean difference.

Mindfulness (n=16)

Sixteen studies of mindfulness interventions were identified, including two studies which reported each two different interventions.³⁹⁻⁵⁴ Of the 18 interventions, 12 reported that wellbeing significantly increased in the intervention group from pre to post- intervention^{13, 39-42, 44, 50-54}, three did not find a statistically significant difference^{46, 47, 49} and three did not test the change.^{43, 45, 48}

Half of the studies considered a control group, of which four reported that the intervention improved wellbeing in the intervention compared to control^{40, 43, 45, 52}, three reported no statistically significant difference between the intervention and control groups^{39, 47, 48} and one did not formally assess differences between groups.⁴¹ The meta-analysis (n=13 interventions) suggested that mindfulness improved wellbeing with a medium to large effect size (SMD: 0.52 (95% CI: 0.33, 0.72)). The three interventions that improved wellbeing the most were longer mindfulness courses or programmes, consisting of 5 to 8 weekly sessions lasting up to 2.5 hours per session.^{50, 52, 54}

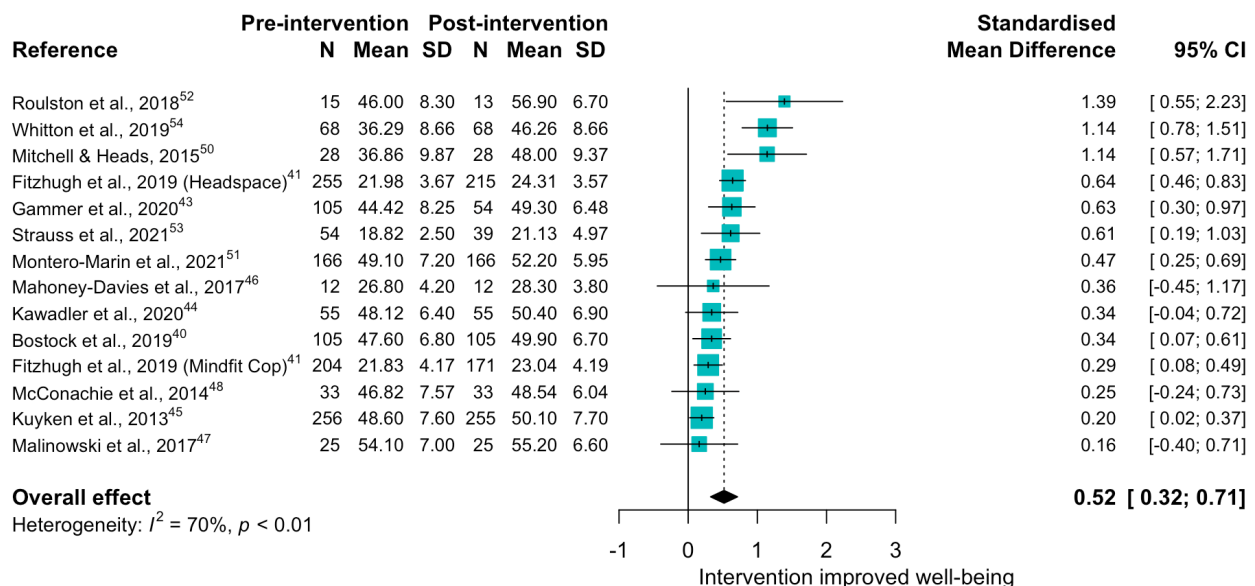


Figure 3. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 1: Mindfulness interventions. Change indicated by standardised mean difference.

Psychoeducation (n=9)

Nine studies examined psychoeducation interventions across various settings⁵⁵⁻⁶³, with the majority reporting that the intervention improved WEMWBS score (n=7).^{55, 56, 58-60, 62, 63} However, only two studies had a control group, both of which indicated that there was no impact of the intervention when compared to a control group.^{55, 57} All studies were included in the meta-analysis, which revealed a similar medium effect size to mindfulness (SMD: 0.52 (0.17, 0.87)). Although not formally tested in the paper, Kidger et al.⁵⁷ found that the mental health education intervention had a negative effect on the teachers it was delivered to and did not improve wellbeing in their students. Similar to mindfulness, the most impactful interventions were those that delivered psychoeducation over longer periods of time (5 to 20 sessions).^{55, 56, 62}

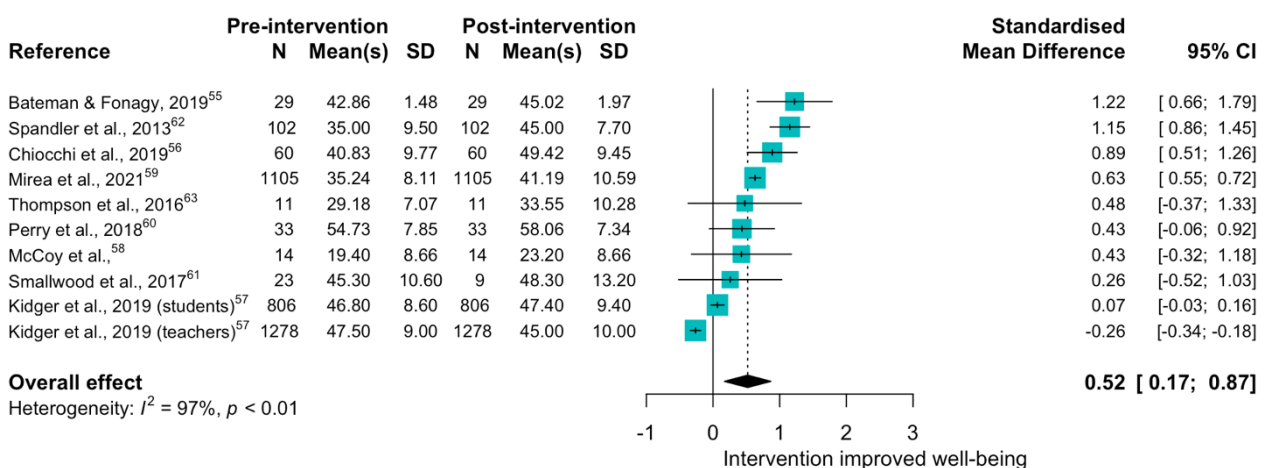


Figure 4. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 1: Psychoeducation interventions. Change indicated by standardised mean difference.

Cognitive behavioural therapy (CBT) n=18

Eighteen studies assessed CBT interventions⁶⁴⁻⁸¹, with half reporting that wellbeing significantly improved after the intervention^{64, 66, 68, 70, 73, 75, 76, 80, 81}, two reporting no statistically significant change^{71, 77} and the remaining failed to analytically assess any change.^{65, 67, 69, 72, 74, 78, 79} Control groups were present in 11 of the 18 studies. Eight found evidence that the intervention improved wellbeing compared to the control group^{66-70, 72, 76, 77}, while only two reported no effect.^{74, 78} Of note, just one of four sleep-focused CBT interventions formally tested, and demonstrated, a positive effect of sleep CBT on wellbeing both over time and compared to a control group.⁶⁸ The meta-analysis of 17 of the 18 CBT studies demonstrated a medium to strong effect of CBT on wellbeing (SMD: 0.58 (0.42, 0.75)). Of note, a 6-session individual CBT programme for patients with persistent persecutory delusions yielded the largest improvement in wellbeing⁷⁰.

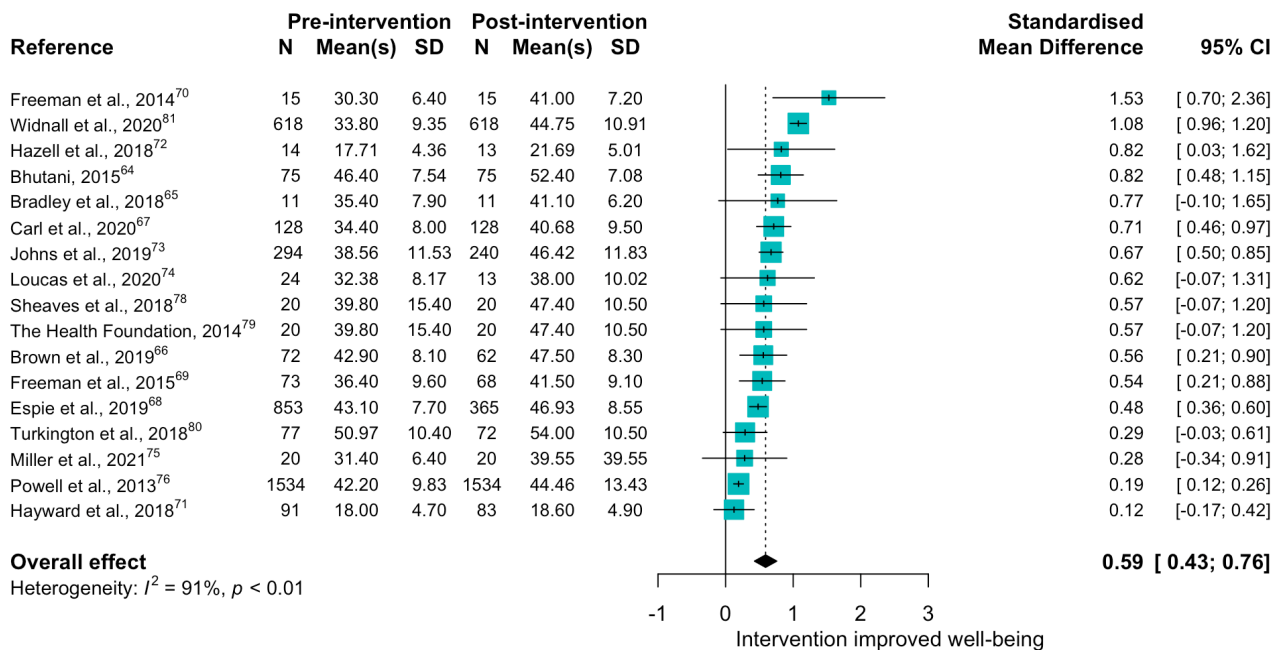


Figure 5. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 1: Cognitive behavioural therapy interventions. Change indicated by standardised mean difference.

Other therapies (n=15) + Acceptance and Commitment Therapy (n=4)

We identified 19 studies of other therapy interventions.⁸²⁻¹⁰⁰ These included Acceptance and Commitment Therapy (n=4)^{84, 92, 93, 96}, counselling (n=4)^{85, 86, 94, 95}, pet therapy (n=2)^{88, 90}, solution-focus brief therapy (n=2)^{97, 98} amongst other specific or group-based therapies.^{82, 83, 89, 91, 99, 100} The majority of these studies reported that wellbeing significantly increased from pre to post intervention.^{83, 85-91, 94, 99} Nine studies compared changes in WEMWBS scores between the intervention and a control group.^{86, 90, 93, 95-99} One pet therapy intervention⁹⁰ and one counselling intervention⁹⁶ significantly improved wellbeing compared to a control group. The remaining six did not find a statistically significant difference in wellbeing between the intervention and control groups.^{93, 95, 97-99} Due to heterogeneity amongst therapy types in this section, an overall effect size was not obtained. However, for the 17 studies with available data, individual SMDs are provided in Figure 6, showing mixed evidence for Acceptance and Commitment Therapy and consistently positive evidence for counselling.

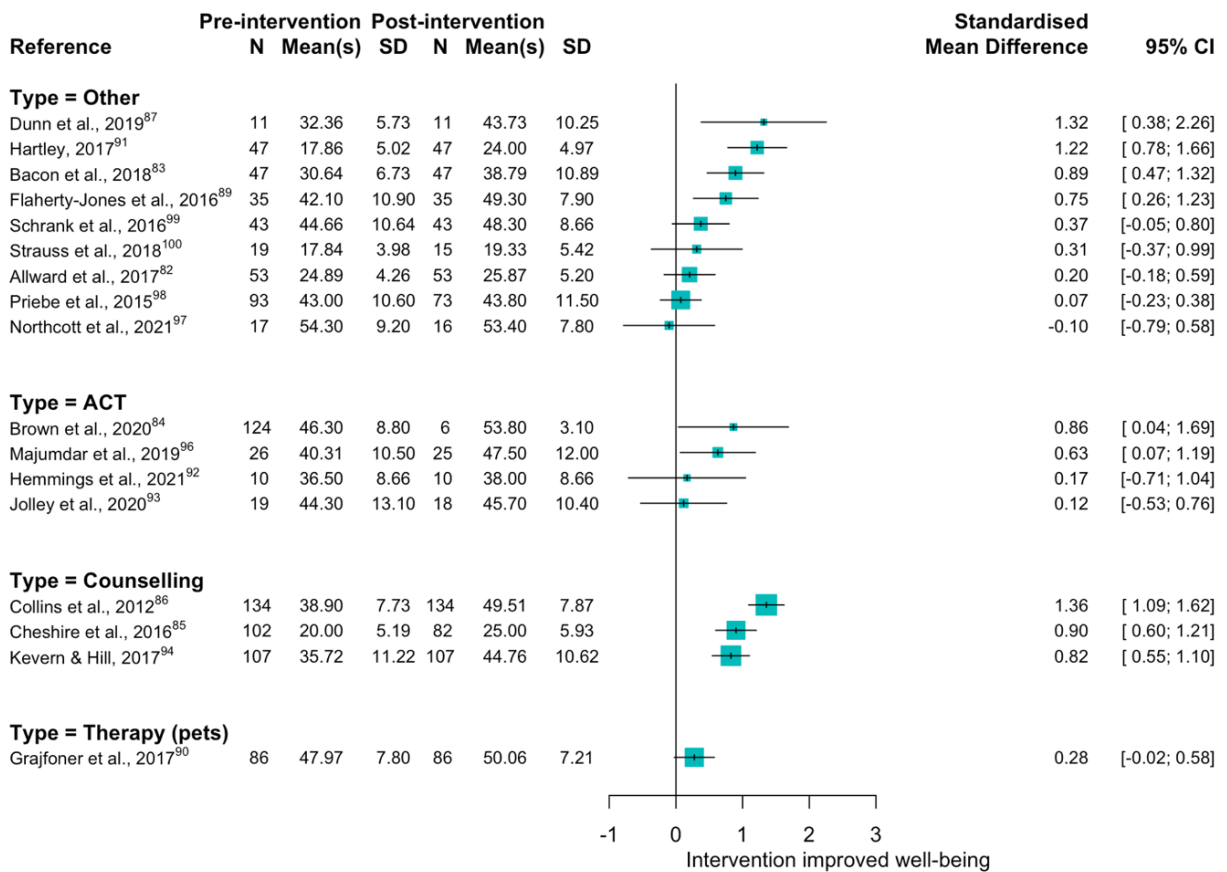


Figure 6. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 1: Other therapies and Acceptance and commitment therapy interventions. Change indicated by standardised mean difference.

Theme 2: Social interventions (n=54)

Person-centred advice/support (n=18)

A total of 18 studies evaluated 20 different person-centred advice or support interventions.¹⁰¹⁻¹¹⁸ Results were mixed, with a third (n=7 interventions) found that the person-centred advice or support had a positive impact on wellbeing^{101, 102, 106, 110, 116, 117}, a third (n=6) found no significant difference^{103, 107-109, 115} and the remaining third (n=7) did not test pre-post differences.^{104, 105, 111-114, 118} Opposing effects on wellbeing may be partially explained by differences in how the interventions were designed and delivered. Similar to 'other therapies' in the psychological interventions theme, it was deemed inappropriate to estimate an aggregate SMD due to intervention differences (see detail described in Appendix I2), although it was clear that person-centred advice or support interventions had a medium to large impact on wellbeing (Figure 7).

No study reported that wellbeing improved in those receiving person-centred advice or support when compared to a control group.^{103, 105, 107, 112-114, 118} However, two interventions reported close to a 100% increase in WEMWBS scores. One was a peer-led service providing advice on welfare benefits and health advocacy¹¹⁶, and the other was an intensive advice service delivered by Citizens Advice over 2-months to 2-years.¹⁰⁶

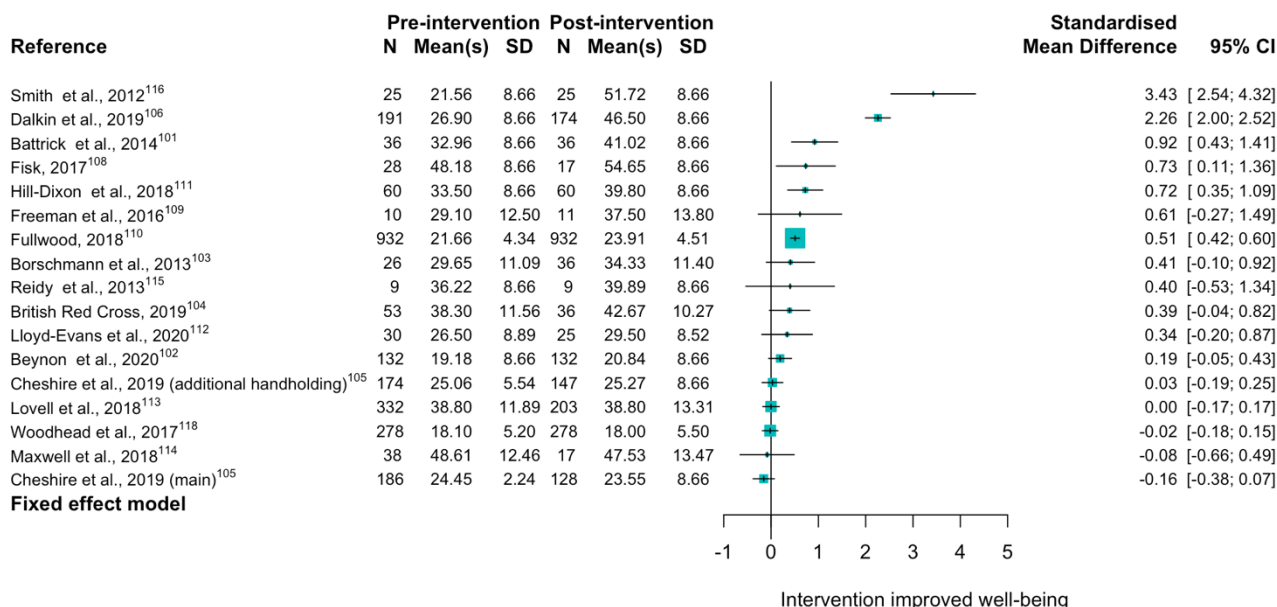


Figure 7. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 2: Person-centred advice/support interventions. Change indicated by standardised mean difference.

Parenting (n=18)

We identified 16 studies of parenting programme interventions¹¹⁹⁻¹³⁴, including three separate parenting programmes described in a single study.¹³¹ Eight of the 18 parenting interventions improved the wellbeing of parents from baseline to post-intervention, while three reported no impact.^{121-123, 125-128, 132} No intervention measured wellbeing in children. Of the six studies that compared wellbeing changes in those receiving the parenting intervention and those who didn't, only the Incredible Years Toddler Parenting Programme demonstrated a positive impact.¹²⁸ The SMD in the parenting education meta-analysis indicated a medium effect size (SMD: 0.53 (0.38, 0.68)).

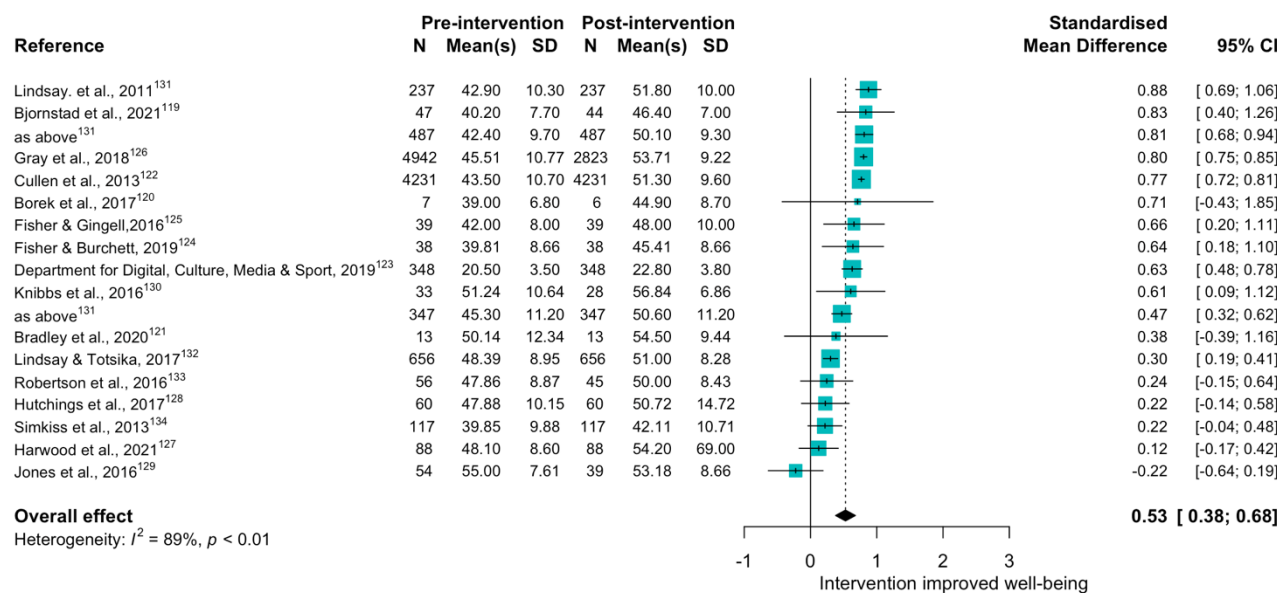


Figure 8. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 2: Parenting interventions. Change indicated by standardised mean difference.

There were also two studies of a whole-family intervention focused on reducing domestic abuse and supporting survivors, children and perpetrators^{135, 136}, with one additional funding-level program described on page 17 (Theme 5: Other).²⁰⁹ The tri-intervention Opening Closed Doors program found an aggregate improvement in wellbeing for female parents/carers (Integrated Women’s Support programme) and male parents/carers (Domestic Abuse Perpetrator Programme).¹³⁶ However, there was no control group for comparison. Wellbeing in children attending the third program was not assessed. There was no impact of either of the other two programs (the SafeLives program¹³⁵ and Troubled Families comparison²⁰⁹).

Community and peer-support interventions (n=12)

There were seven peer support interventions targeting diverse age groups including two in school-aged children^{137, 138}, one in university students¹³⁹, two in older adults^{140, 141} and two for a wider adult demographic.^{142, 143} Just one intervention, for children affected by parental separation and/or conflict, reported improved wellbeing in attendees (not reported in meta-analysis)¹³⁷, however an 8-week peer-support program in PhD students also had a strong effect¹³⁹, although this was not formally tested in the paper. There was no overall improvement in wellbeing in those taking part in peer support interventions (SMD: 0.18 (-0.16, 0.52); no effect). Of three studies that compared the intervention group to a control, one found no difference in wellbeing¹⁴² and the other two did not formally assess changes.^{138, 143}

Three of five community interventions, that brought individuals together for social or volunteering activities, demonstrated that participants improved their wellbeing after participating in activities¹⁴⁴⁻¹⁴⁶; the other two did not formally assess change in wellbeing^{147, 148} and none of the five had a control group. There was evidence of a small effect size (SMD: 0.17 (0.06, 0.29)).

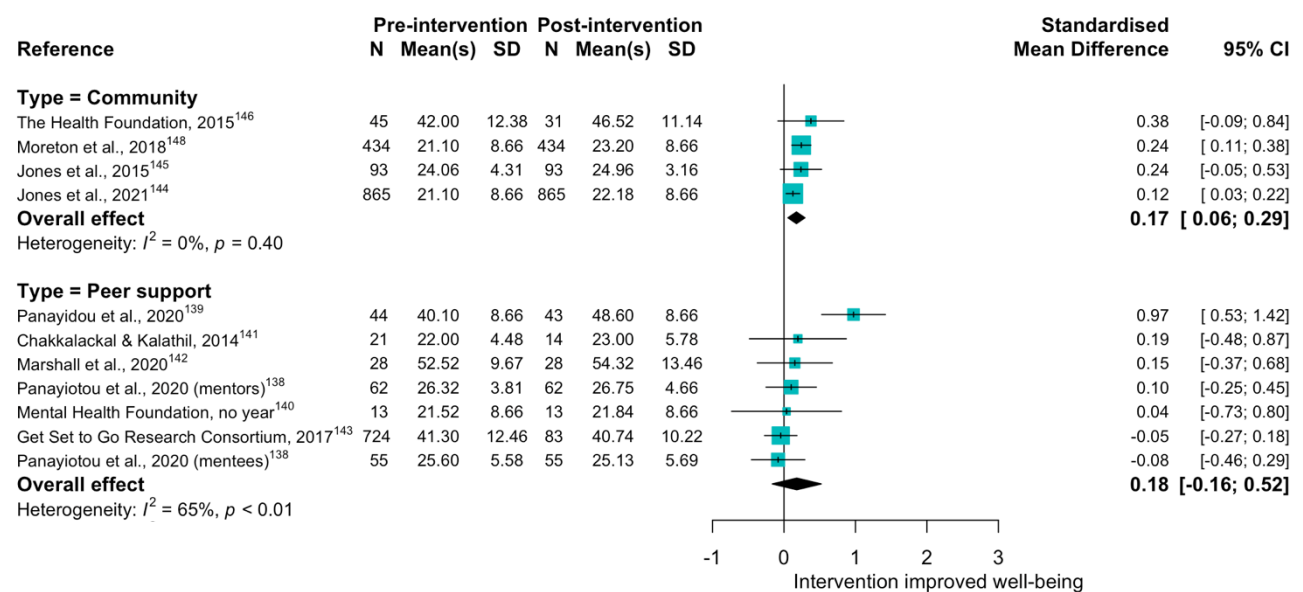


Figure 9. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 2: Community and peer-support interventions. Change indicated by standardised mean difference.

Social prescribing (n=7)

Finally, seven studies described social prescribing interventions.¹⁴⁹⁻¹⁵⁵ These often overlapped with art-based interventions, but only the interventions which involved formal prescribing of social

activities are summarised here. Four studies reported that social prescribing improved wellbeing¹⁵¹⁻¹⁵⁴, one found there was no effect on wellbeing¹⁴⁹ and two did not test for differences.^{104, 150} No study contained a control group. There was a medium to high effect of social prescribing on wellbeing (SMD: 0.55 (0.45, 0.64)). Effect sizes were similar across all five studies in the meta-analysis, as indicated by complete overlapping of confidence intervals and the lack of statistical heterogeneity (0%; p=0.91).

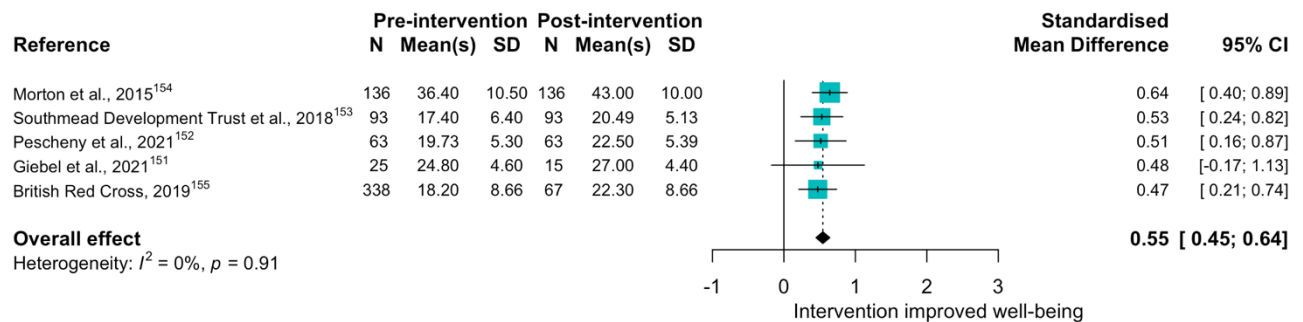


Figure 10. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 2: Social prescribing interventions. Change indicated by standardised mean difference.

Theme 3 Art, Culture, Environment (n=29)

Art (n=19)

Nineteen studies evaluated art interventions, which included activities such as singing, music lessons, textiles, painting, drama classes, photography, fictional audiobooks and stand-up comedy.¹⁵⁶⁻¹⁷⁴ It was evident that art had a strong impact on wellbeing with significant improvements pre to post in more than three quarters (n=15) of the studies. Interventions that did not have a positive effect on wellbeing included stand-up comedy, listening to fictional audiobooks and a series of mixed visual arts classes.^{156, 165, 168} Three of five studies reported that the intervention improved wellbeing as compared to a control group; these were all long-term interventions consisting of 10-12 weeks of weekly choir, drumming, and a different set of mixed visual art sessions.^{162, 163, 166} The meta-analysis revealed a strong effect size (SMD: 0.62 (0.45, 0.79)).

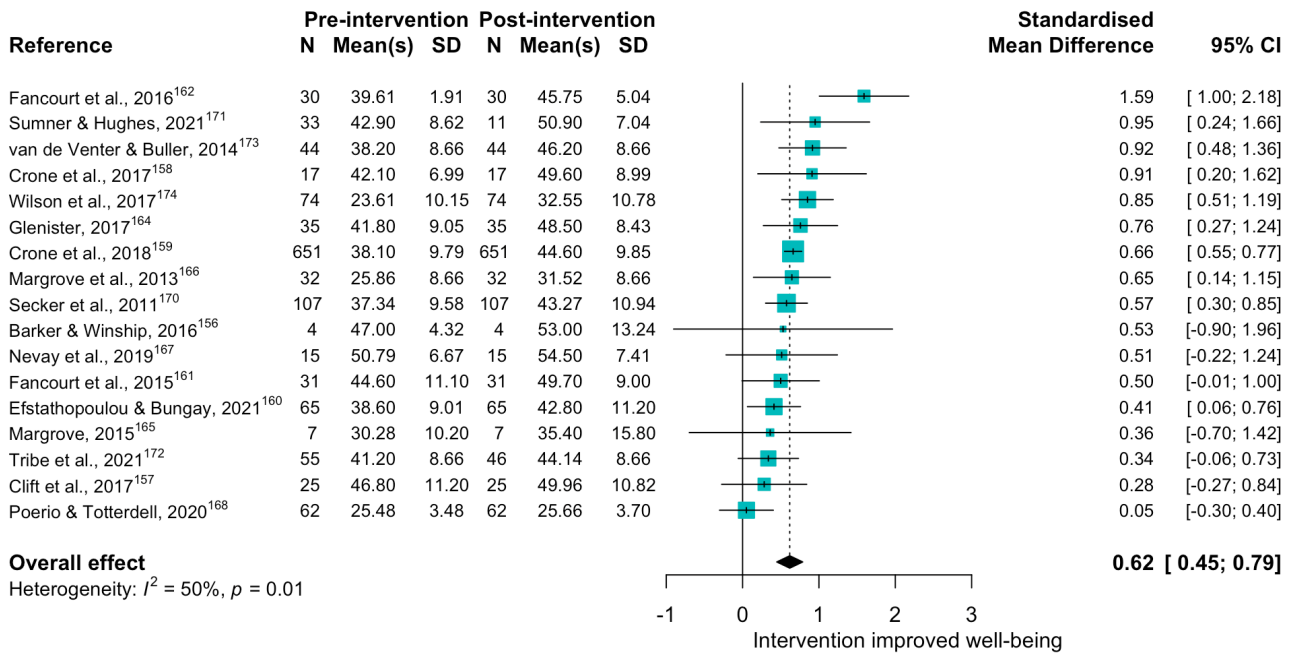


Figure 11. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 3: Art interventions. Change indicated by standardised mean difference.

Culture (n=3)

Three intervention studies consisted of culturally focused activities¹⁷⁵⁻¹⁷⁷. One intervention was targeted towards young African-Caribbean men in Birmingham to enable them to explore their culture and heritage and found that wellbeing increased after participation in workshops and activities.¹⁷⁵ The other two studies, one of which targeted adults with long-term mental health conditions to explore prehistoric landscapes¹⁷⁶ and one consisting of a programme of activities that encouraged local residents to explore local arts and culture¹⁷⁷, did not formally assess if the interventions improved wellbeing. None of these three studies had a control group.

Environmental (n=7)

Seven studies evaluated interventions that aimed to improve the local environment¹⁷⁸⁻¹⁸⁴, none of which included a control group for comparison. Five studies considered if wellbeing changed over the course of the intervention, with only two reporting a significant increase.^{182, 183} There was no overall effect (SMD: -0.05 (-0.14, 0.05)), although this was driven by a large urban regeneration study (n=1398 at baseline), which found no change in wellbeing.¹⁸¹ Notably, statistical heterogeneity was low as all confidence intervals overlapped (0%; $p=0.45$).

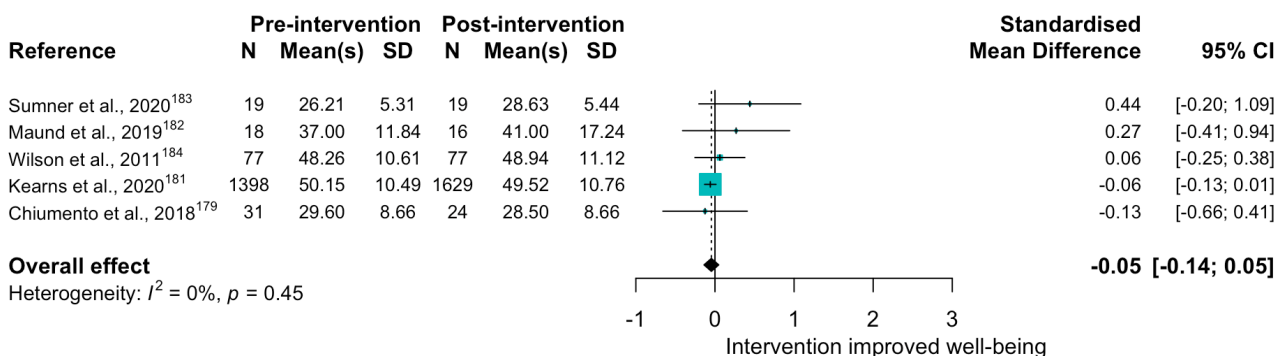


Figure 12. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 3: Environmental interventions. Change indicated by standardised mean difference.

Theme 4. Physical health promotion (n=18)

Physical activity (n=14)

There were 14 physical activity intervention studies¹⁸⁵⁻¹⁹⁸, with the majority (n=10) reporting that wellbeing increased from pre- to post-intervention.^{185, 187-190, 194-196, 198} Two of these were studies that assessed scores before and after <1hr interventions^{188, 189}, and therefore are not included in further synthesis. Only one intervention, a football-based exercise program, did not improve wellbeing.¹⁹¹ Three studies did not test if wellbeing changed.^{186, 192, 197} Interestingly, the study with the largest effect size was also a football-based exercise program, with mixed exercises developed at Prenton Park, the home ground of Tranmere Rovers FC.¹⁹⁴ Of the four studies that compared the physical activity intervention to a control group, two reported improvement in the intervention group against the control^{192, 197}, one did not find any effect¹⁸⁵, and one did not test differences.¹⁸⁶ The meta-analysis indicated that physical activity interventions had a moderate effect on wellbeing (SMD: 0.38 (0.14, 0.61)).

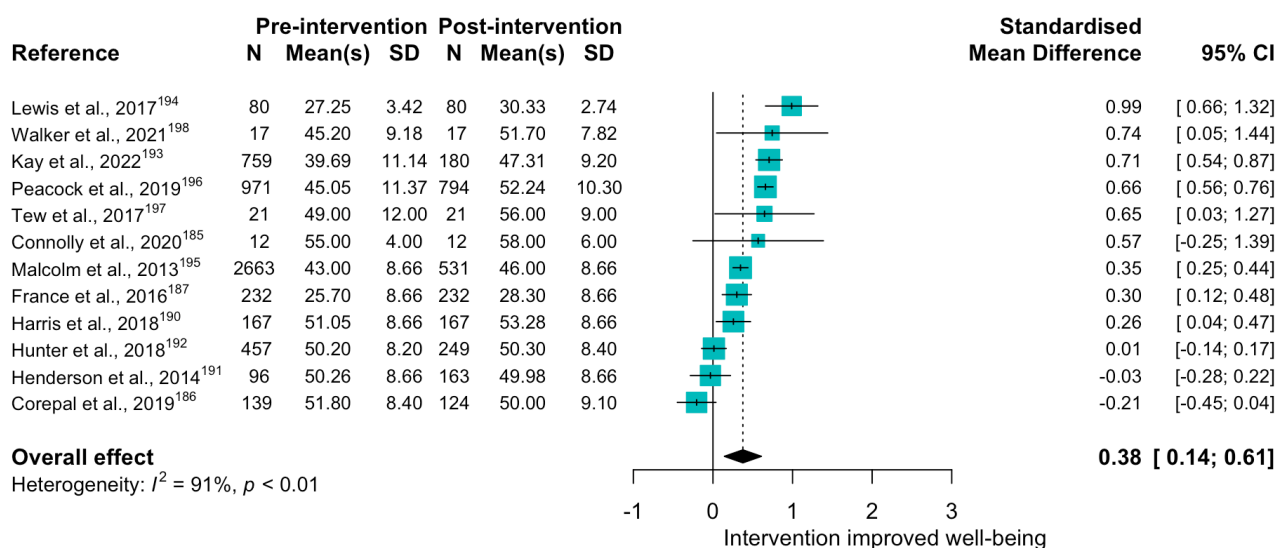


Figure 13. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 4: Physical activity interventions. Change indicated by standardised mean difference.

Health promotion (diet or mixed) (n=4)

There were four studies of health promotion interventions; two focused on alcohol screening and education in adolescents^{199, 200}, one on exercise and diet workshops²⁰¹, and one was multi-disciplinary, supporting participants to achieve a healthy lifestyle with a focus on alcohol use, smoking, diet and physical activity.²⁰² The joint exercise-diet intervention had a positive impact on wellbeing over time²⁰¹, while alcohol education did not improve wellbeing compared to a group who did not receive the information.²⁰⁰ The remaining studies did not test change in wellbeing over time or between control and intervention groups. Four national-level health promotion interventions are described further under the funding section below.^{203, 204 205, 206}

Theme 5 Other (n=28)

Interventions that did not clearly fit into one of the four main themes are described below. This includes: funding (n=7), targeted medical interventions (n=7), recovery colleges (n=5), professional training (n=4) and other (n=5).

Funding (n=7)

We identified seven large scale funding programmes for a range of projects: a healthier lifestyles and community wellbeing programme^{203, 204}, programmes targeted towards improving older adults' physical activity and diet^{205, 206}, youth services^{207, 208}, and a Troubled Families programme.²⁰⁹ Three of the latter four health promotion funding programmes had a positive impact on wellbeing^{203, 205, 206}, although none compared effects compared to a control group. There was no change in wellbeing in those participating in funded Troubled Families programmes, with no control group for further comparison.²⁰⁹ Finally, funding from the Youth Investment Fund providing frontline, open access youth services, demonstrated a positive effect on wellbeing²⁰⁷, while a peer-support funding program in nearly 100 schools showed no impact.²⁰⁸ Interpretation of differences across schemes should be done with caution, due both to substantial between-scheme differences as well as within-scheme (e.g. each funding programme covers tens to hundreds of locally delivered projects). Consistent with other subthemes, no meta-analysis was conducted but individual effect sizes are shown below.

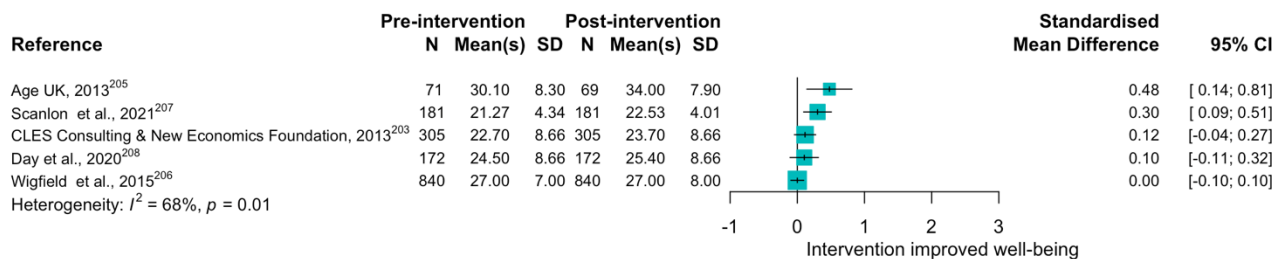


Figure 14. Forest plot indicating change in WEMWBS score from pre to post intervention for Theme 5: Funding interventions. Change indicated by standardised mean difference.

Targeted medical (n=7)

We identified seven studies with specific medical interventions that measured change in wellbeing as a secondary outcome.²¹⁰⁻²¹⁶ These interventions aimed to: improve vision function²¹⁰; improve physical functioning in infants who had perinatal stroke or unilateral haemorrhagic parenchymal infarction²¹¹; reduce anxiety using pharmaceutical interventions²¹²; understand the impact of transcranial random noise simulation on physical and mental health outcomes²¹³; lower cardiovascular disease risk in patients with severe mental illness²¹⁴; provide earlier access to hearing dogs in people with hearing loss²¹⁶; and improve memory in adults with schizophrenia and a mild level of depression.²¹⁵ Five studies found no difference in wellbeing after the medical intervention. However, augmentation of Celecoxib (typically used to treat pain) did improve wellbeing after 6-weeks in those with an anxiety disorder.²¹² Additionally, individuals with hearing loss who received immediate access to a hearing dog also improved their wellbeing compared to a control group who waited the usual time (6-36 months).²¹⁶

Professional (n=4)

Four studies evaluated interventions that delivered training to healthcare practitioners^{217, 218}, healthcare managers and employees²¹⁹, and frontline domestic and violent abuse practitioners.¹³⁵ All four studies considered if wellbeing significantly changed from pre- to post-intervention; one found wellbeing significantly improved²¹⁸ and the remaining three studies found no significant difference.^{135, 217, 219} Two of these studies also compared the interventions against a control group although neither found a significant difference.^{217, 219} Notably, the intervention that delivered training to frontline domestic and violent abuse took place alongside the SafeLives intervention delivered to families of domestic abuse, which also had reported no significant effect (see section page 13 on parenting and families).

Long-term mental health recovery services (n=5)

Five studies investigated if attending recovery colleges or personalised mental health residential services improved wellbeing, although none of these had a control group.²²⁰⁻²²⁴ Recovery colleges are online or community-based centres typically aiming to equip mental health service users with the tools and techniques to manage their own wellbeing. Harrison et al.²²² included data from four different recovery colleges, while Lamb et al. investigated wellbeing change in acute day units and in crisis resource teams across four trusts²²³; however neither study formally assessed if wellbeing improved. Data from the other three studies indicated that the services had a positive impact on wellbeing.^{220, 221, 224}

Other (n=5)

This final section describes five unique interventions. Naruse et al.²²⁵ showed that 3 consecutive weekly couples massage classes improved wellbeing from start to end, although it was not different when compared to a control group. Adding to the minimal evidence on CBT sleep interventions (see page 10), a sleep education and behavioural programme delivered to parents of children with sleep problems had a positive impact on parental wellbeing.²²⁶ A unique co-design intervention that allowed employee teams to create and test solutions for their workspaces improved wellbeing from pre to post and compared to those who were not involved.²²⁷ Finally, wellbeing did not change when social media use was restricted over a 9 week period for university students²²⁸, nor when patients with dementia were provided with small-scale aids and home adaptations.²²⁹

DISCUSSION

Key findings

In this comprehensive rapid review of traditional databases, grey literature and a Call for Evidence, we identified 228 records (209 unique studies) that used the WEMWBS to assess how different interventions improved wellbeing. Based on a priori knowledge, mapping exercises and consultation with experts, five key intervention themes emerged: Psychological (n=80); Social (n=54); Art, culture and environment (n=29); Health Promotion (n=18); and Other (n=28). Evidence was synthesised across nineteen subthemes and individual study details are provided in Appendices 11-15.

The meta-analyses examining change in WEWMBS score from pre to post intervention maximised the number of studies which could be included (n=188; 84%) and therefore provides the best assessment of what worked to improve wellbeing. Where >0.60 indicates a large effect size, >0.50 indicates a medium effect size and >0.20 indicates a small effect size, it was evident that interventions based on building emotional resilience, focusing on personal wellbeing and learning self-management techniques had the greatest impact on wellbeing (n=15 of 18 studies). Other interventions with medium to large effects included those related to art and social or psychological aspects. There was no evidence to suggest that peer-support or environmental interventions altered wellbeing and there was insufficient evidence from the remaining subthemes to make other conclusions. However, there was a general trend that counselling, large-scale funding interventions and recovery colleges each improved wellbeing. Finally, the impact of person-centred support and advice interventions appeared large, but a single SMD could not be estimated due to substantial differences in intervention design, delivery and target demographic. Effect sizes of all meta-analyses are presented in Table 1.

Table 1. Summary of overall standardised mean difference (SMD) by intervention type

Theme	Intervention subtheme	SMD (95% confidence intervals)
Psychological	Resilience, wellbeing and self-management	0.72 (0.42, 1.02)
Arts, Culture & Environment	Art	0.62 (0.45, 0.79)
Social	Person-centred support and advice	0.58 (0.14, 1.02)
Psychological	CBT	0.58 (0.42, 0.75)
Social	Social prescribing	0.55 (0.45, 0.64)
Social	Parenting	0.53 (0.38, 0.68)
Psychological	Psychoeducation	0.52 (0.17, 0.87)
Psychological	Mindfulness	0.51 (0.33, 0.72)
Physical health promotion	Physical activity	0.38 (0.14, 0.61)
Social	Peer-support	0.18 (-0.16, 0.52)
Social	Community-based	0.17 (0.06, 0.29)
Arts, Culture & Environment	Environment	-0.05 (-0.14, 0.05)

There was substantial clinical and methodological heterogeneity across studies, including differences in sample characteristics, baseline WEMWBS scores, frequency and duration of

interventions and primary aims of interventions. Despite the use of a random-effects meta-analysis to partially account for this, the I^2 statistic indicated high statistically heterogeneity for nearly all subthemes (resulting from variation between study estimates and confidence intervals). Due to the breadth of studies captured in this review, it is unsurprising that single interventions had substantially larger impacts than others on wellbeing. For example, larger improvements in wellbeing were commonly observed in studies with longer interventions (e.g. weekly sessions for 6-12 weeks) compared to single sessions. Due to differences in design and delivery of each intervention, the overall SMD in each meta-analysis must be interpreted with caution. While the SMD provide an overall indication of what type of interventions work, further investigation into the components of successful intervention (e.g. target demographic, setting, length, frequency and duration) is needed.

The WWCW Quality Checklist: quantitative evidence of intervention effectiveness suggested that there was moderate to high quality of evidence across included studies. However, as described above, the checklist is likely to have overestimated the quality of the studies. The key limitation of the evidence base was the lack of control groups, which are crucial for assessing if the intervention worked. Only 77 of 208 studies examined a control group, with just over half of these using randomisation to allocate individuals to condition. The lack of control groups shifts the summary of evidence substantially (see Appendix F & G). For example, interventions on resilience, wellbeing and self-management appeared to have the largest positive impact on wellbeing when considering pre and post scores in the intervention group for all studies (see Table 1), however no study found evidence supporting the intervention in comparison to the control group (n=3 null associations; n=0 positive). Other subthemes that had strong evidence of improved wellbeing from pre to post but little to no evidence when compared to a control group included: psychoeducation, person-centred support and advice, community and peer support, social prescribing.

Strengths and limitations of the review

This rapid review followed a rigorous registered protocol and was conducted at pace over a short period of time providing a comprehensive synthesis of intervention studies that used WEMWBS. The simple and inclusive search strategy maximised the identification of relevant records. To reduce publication bias, grey literature sources were searched, and a successful Call for Evidence increased the pool of evidence. By contacting authors, the amount of missing data was reduced and therefore more studies could be included in the meta-analyses. Finally, we followed recent guidance from the Cochrane collaboration to conduct the rapid review process.⁸ Double screening of all full-text articles excluded by the first reviewer ensured that no studies were inadvertently omitted from the review.

However, there are several limitations that must be acknowledged in relation to the rapid review methodology. First, only English-language UK-based studies were included, and records with insufficient study detail (e.g. conference abstracts, and presentation slides) were excluded. Second, a single reviewer screened and extracted most of the data, although quality assurance processes were in place to reduce errors. While grey literature sources were extensively searched and the Call for Evidence extended across diverse networks, we were unable to access data on registered users

of WEMWBS from Warwick Medical School. An early evaluation of the responsiveness of the WEMWBS scale in 2012 analysed pre and post- data from twelve registered interventions, each of which would have met the criteria for inclusion in this review.²⁴⁸ In the decade since, this list is expected to have grown substantially.

The analysis in this review was limited to the most commonly reported statistics (e.g. mean difference). Therefore, we did not conduct a meta-analysis of the mean change difference between control and intervention group, nor a meta-regression of those studies that provided model estimates. For intervention studies, analysis of differences in mean change score between two groups is preferred over pre-post comparisons in a single group. The rudimentary data available in most studies meant that there were insufficient studies to assess either of these analyses. Furthermore, we did not investigate how associations between interventions and wellbeing differed by participant characteristics (age, gender, ethnicity, mental health status etc.) or changed across different lengths of follow-up. Due to the high number of studies included in this review, interventions were coded into a single theme for simplicity of reporting and to aid interpretation, although there is clearly overlap between themes and interventions. Finally, although analysis of economic data was provided in 38 studies and across 15 of the 19 subthemes (most commonly in person-centred information or support interventions; n=7), it was outside of the scope of this review.

Implications for research and practice

This review provides a broad overview of mental wellbeing interventions conducted over the past 15 years in the UK and highlights several avenues for future research. It is evident that many different intervention types can improve mental wellbeing. The positive impact of nearly all intervention types suggest that a wide range of interventions to improve wellbeing should be supported; this has practical implications as intervention facilitators may have different resources available (e.g. infrastructure, time, finances) or may target dissimilar topics, settings or participants.

However, further research is needed to investigate the mechanisms by which each intervention may be acting upon mental wellbeing. For example, it is not clear if it is the subject of the intervention (e.g. learning resilience techniques, or improving sleep) or the mode of delivery which is effective at improving wellbeing (e.g. frequency, duration, group-based or one to one). The latter was not systematically extracted in this review, however, appears to vary greatly between studies. For example, some interventions are delivered a one-to-one basis whereas others are conducted in groups, some are private and accessible via fee-based models, whereas others are charity funded and free to access. Further differences in the length of courses and individual sessions, in addition to the type of engagement taking place, i.e. whether participants were 'learning', 'talking', or 'doing' are all likely to be active ingredients in the intervention.

If heterogeneity in intervention type can be limited, potentially by narrowing the focus of future reviews, further identification of the components of a successful intervention is feasible. For example, there was consistent evidence that peer-centred support and advice interventions had a positive impact on mental wellbeing, but there was too much heterogeneity to synthesise results. Specifically, these interventions often targeted vulnerable but diverse groups (e.g. older adults, those in insecure housing, those with mental health diagnoses, survivors of human trafficking) with

substantial variation in intervention intensiveness (e.g. single interaction, 2-8 sessions, ongoing support for weeks/months/years). A future review focused on these interventions, not limited to WEMWBS, could improve understanding in this area. Other recommendations for future reviews on improving mental wellbeing include social prescribing, community or peer support, culture or environment and funding-level interventions. Within this review, there was positive evidence for each of these themes, however conclusive findings were limited by the small number of studies measuring WEMWBS, the lack of control groups and the high levels of heterogeneity.

To ensure that the most beneficial intervention is used for a particular group of people, future work could examine how wellbeing intervention effects differ by participant characteristics. Only 35 studies in this review examined WEMWBS scores stratified by participant characteristics (e.g. gender, age, etc.). Investigating whether wellbeing interventions differ in impact for different groups could help reduce health inequities by understanding which interventions are most inclusive, which are particularly effective for more vulnerable groups of people, and whether some interventions have effects only for those who have high levels of wellbeing. Additionally, it was not common for studies to investigate whether their sample was representative of the target population. This simple step would greatly progress knowledge about what interventions work and for whom.

Future work should assess how long the effects of wellbeing interventions appear to last. This understanding could have implications for how often the intervention needs to be conducted, or what types of interventions can sustain wellbeing over a longer period. Evaluations of wellbeing interventions would be enhanced by studies with repeated follow up periods, followed by a review capturing differences in wellbeing across different lengths of follow-up (for similar interventions). Matching this research with future economic evaluation to identify which interventions are cost-effective may be extremely useful for policy makers and health providers.

As noted in the critical appraisal results, there were several methodological issues identified in the included papers. To improve the quality of the research and aid interpretation of future evaluations, intervention studies should make every effort to include a control group. For interventions where it is challenging to incorporate a control group into the study design (e.g. recovery colleges), waitlist control group could represent a feasible option. Attrition and missing data levels were moderate across studies, but it was concerning that only a small number of studies attempted an intention-to-treat analysis and fewer compared participant characteristics (wellbeing and demographics) between those who took part in the intervention until completion and those who did not. The quality of evaluations, particularly those produced as grey literature, could be improved with training in research methodology or collaboration with an evaluation partner.

We recommend that anyone using the WEMWBS to evaluate an intervention should familiarise themselves with the online user guide, which is available on the Warwick Medical School website after registering to use the scale. Most importantly, the WEMWBS questionnaire should be completed by participants before and after an intervention. As the WEMWBS asks how respondents have felt in the past two weeks, there should be at least two weeks between both measurements. It is also recommended by Warwick Medical School that the WEMWBS results should be presented

as a mean score for the population of interest with either a standard deviation or 95% confidence interval. Most studies adhered to this guidance, but for approximately 15% of interventions it was not possible to include these results in synthesis despite having used the same outcome measure pre and post intervention.

Conclusions

This rapid review summarises the key findings of mental wellbeing interventions conducted over the past 15 years and highlights several areas for future research. There was clear evidence that a broad range of interventions are effective at improving mental wellbeing, with medium to strong effects shown for psychological, social and art interventions. However, the quality of the evidence and the heterogeneity between individual intervention design, delivery and target group makes it challenging to draw strong conclusions, particularly the absence of a control group in most studies. With specific methodological changes in place, the valuable work that various stakeholders (e.g. from the NHS, government, academia, community organisations) are doing will help improve national wellbeing, and help future researchers and policy makers understand what works for mental wellbeing.

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APPENDICES

Appendix A: The Warwick-Edinburgh Mental Wellbeing Scales

The Warwick-Edinburgh Mental Wellbeing Scale (14-items): Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks

	None of the time (1)	Rarely (2)	Some of the time (3)	Often (4)	All of the time (5)
1. I've been feeling optimistic about the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I've been feeling useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I've been feeling relaxed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I've been feeling interested in other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I've had energy to spare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I've been dealing with problems well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I've been thinking clearly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I've been feeling good about myself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I've been feeling close to other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I've been feeling confident	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I've been able to make up my own mind about things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I've been feeling loved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I've been interested in new things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I've been feeling cheerful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The Short Warwick-Edinburgh Mental Wellbeing Scale (7-items): Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks

	None of the time (1)	Rarely (2)	Some of the time (3)	Often (4)	All of the time (5)
1. I've been feeling optimistic about the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I've been feeling useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I've been feeling relaxed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I've been dealing with problems well	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I've been thinking clearly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I've been feeling close to other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I've been able to make up my own mind about things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix B: Population Intervention Control Outcome (PICO) criteria

Inclusion element	Inclusion criteria
Population	Children and adults (no age or health restrictions)
Intervention	Any intervention which measures WEMWBSs scores as a primary or secondary outcomes
Comparator/ Control	<ul style="list-style-type: none">• All studies must report a pre-intervention WEMWBS scores.• A control group with no intervention or an alternative 'control' intervention is ideal but not mandatory.
Outcome	Reporting a within-person change or a between-person difference in the 7 or 14-item WEMWBS
Other limits	<p>Date: Published from 2007 to present</p> <p>Language: English</p> <p>Study type: Studies evaluating the impact of an intervention on mental wellbeing either with a pre-post design or with a control group. Studies, reports and other grey literature sources.</p>

Appendix C: Search strategy

1	Warwick Edinburgh Mental Wellbeing Scale.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
2	Warwick-Edinburgh Mental Wellbeing Scale.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
3	Warwick-Edinburgh Mental Well-being Scale.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
4	Warwick Edinburgh Mental Well-being Scale.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
5	*WEMWBS.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
6	*SWEMWBS.mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
7	1 OR 2 OR 3 OR 4 OR 5

Note: depending on capability of the database search, wildcards (?) were used to replace the “-” in Wellbeing and Warwick Edinburgh. The use of “*” allows for WEMWBS or SWEMWBS to be captured, and the wildcard “?” will address any differences in spacing or hyphenation used by authors.

Appendix D: Call for Evidence

Nov 11, 2021 | by Margherita Musella

Warwick-Edinburgh Mental Wellbeing Scales (WEMWBS): Call for Evidence

Have you used the [Warwick-Edinburgh Mental Wellbeing Scales \(WEMWBS\)](#) to assess the impact of an intervention on mental wellbeing? Then we want to hear from you.

Together with [Kohlraabi Consulting](#), we are [reviewing evaluation literature](#) that uses the WEMWBS scales to evaluate wellbeing interventions aimed at children, young people and adults. The project is funded by the National Lottery Community Fund.

We are interested in studies from across voluntary, public and private sectors, to summarise evidence on what works to improve mental wellbeing, for whom and in what contexts.

Criteria for submission

We are looking for evaluations of interventions where improvement in mental wellbeing is an objective.

Studies submitted must meet ALL of the following criteria:

- Evaluate a project or intervention conducted in the UK with children, young people and adults. This can be in any setting, including: community interventions, health interventions, social care/services interventions, education/skills-based interventions and workplace interventions.
- Assess the effects of a project or intervention on mental wellbeing using the 14-point Warwick-Edinburgh Mental Wellbeing scale or the 7-point Short-Warwick-Edinburgh Mental Wellbeing scale.
- Measure changes in WEMWBS scores against a comparator. This could be by conducting a before-and-after intervention assessment by measuring mental wellbeing at baseline (e.g. pre-intervention) and at endline (post-intervention).
- Published from 2007-onwards and include author details and date.
- Written in the English language and publicly available.

Why a call for evidence?

Searching for evidence on wellbeing and related topics can present technical and resource challenges, particularly if studies are not adequately indexed by study design or wellbeing measures used. Our experience has shown that some of the wellbeing research produced by our [Centre's audiences](#) is best located through a snowballing approach, by targeting relevant experts and stakeholders.

As part of our evidence reviews, we often use [calls for evidence](#) to complement structured database and online literature searches, and, in particular, to increase the sensitivity of grey literature searches. Where necessary, we seek advice from our project consultation groups to ensure quality and fully document the approach in our reports to maximise transparency.

Find out more about the project

Go to the WEMWBS [Evaluation Deep Dive project page](#).

Appendix E: What Works Centre for Wellbeing Quality Checklist: Quantitative evidence of intervention effectiveness

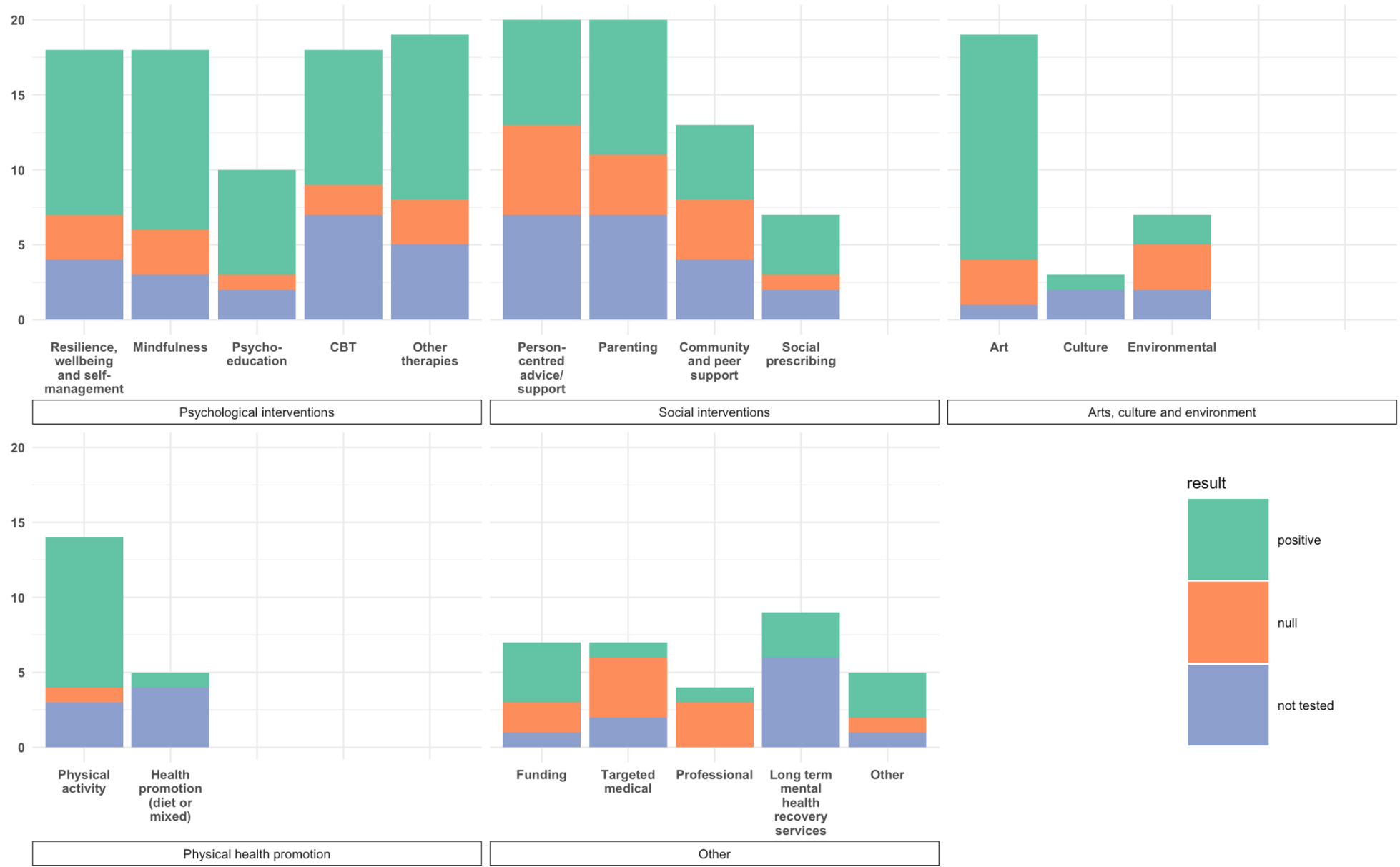
The checklist below is from the quality checklist for quantitative evidence of intervention effectiveness. In a previous review, WWCW developed a scoring system has been added to provide an indication of overall level of confidence in the design, conduct and reporting of the study. The 10 elements of the checklist can be scored either 1 (yes) or 0 (no, can't tell or N/A). The total score can be used to assign each study an overall level of confidence of low (0-2), moderate (3-6) or high (7-10).

Question	Element	Response options
Was the evidence well-designed?	Fidelity: <ul style="list-style-type: none"> The extent to which the intervention was delivered with fidelity is clear – i.e., if there is a specific intervention which is being evaluated, this has been well reproduced. 	Yes (1) No (0) Can't tell (0) N/A (0)
	Measurement: <ul style="list-style-type: none"> The measures are appropriate for the intervention's anticipated outcomes and population. Participants completed the same set of measures once shortly before participating in the intervention and once again immediately afterwards. An 'intent-to-treat' design was used, meaning that all participants recruited to the intervention participated in the pre/post measurement, regardless of whether or how much of the intervention they received, even if they dropped out of the intervention (this does not include dropping out of the study - which may then be regarded as missing data). 	Yes (1) No (0) Can't tell (0) N/A (0)
	Counterfactual: <ul style="list-style-type: none"> Assignment to the treatment and comparison group was at the appropriate level (e.g., individual, family, school, community). The comparison condition provides an appropriate counterfactual to the treatment group. Consider: Participants were randomly assigned to the treatment and control group through the use of methods appropriate for the circumstances and target population OR sufficiently rigorous quasi-experimental methods (regression discontinuity, propensity score matching) were used to generate an appropriately comparable sample through non-random methods. The treatment and comparison conditions are thoroughly described. 	Yes (1) No (0) Can't tell (0) N/A (0)
Was the study carried out appropriately? Including appropriate sample	Representative: <ul style="list-style-type: none"> The sample is representative of the intervention's target population in terms of age, demographics and level of need. The sample characteristics are clearly stated. 	Yes (1) No (0) Can't tell (0) N/A (0)

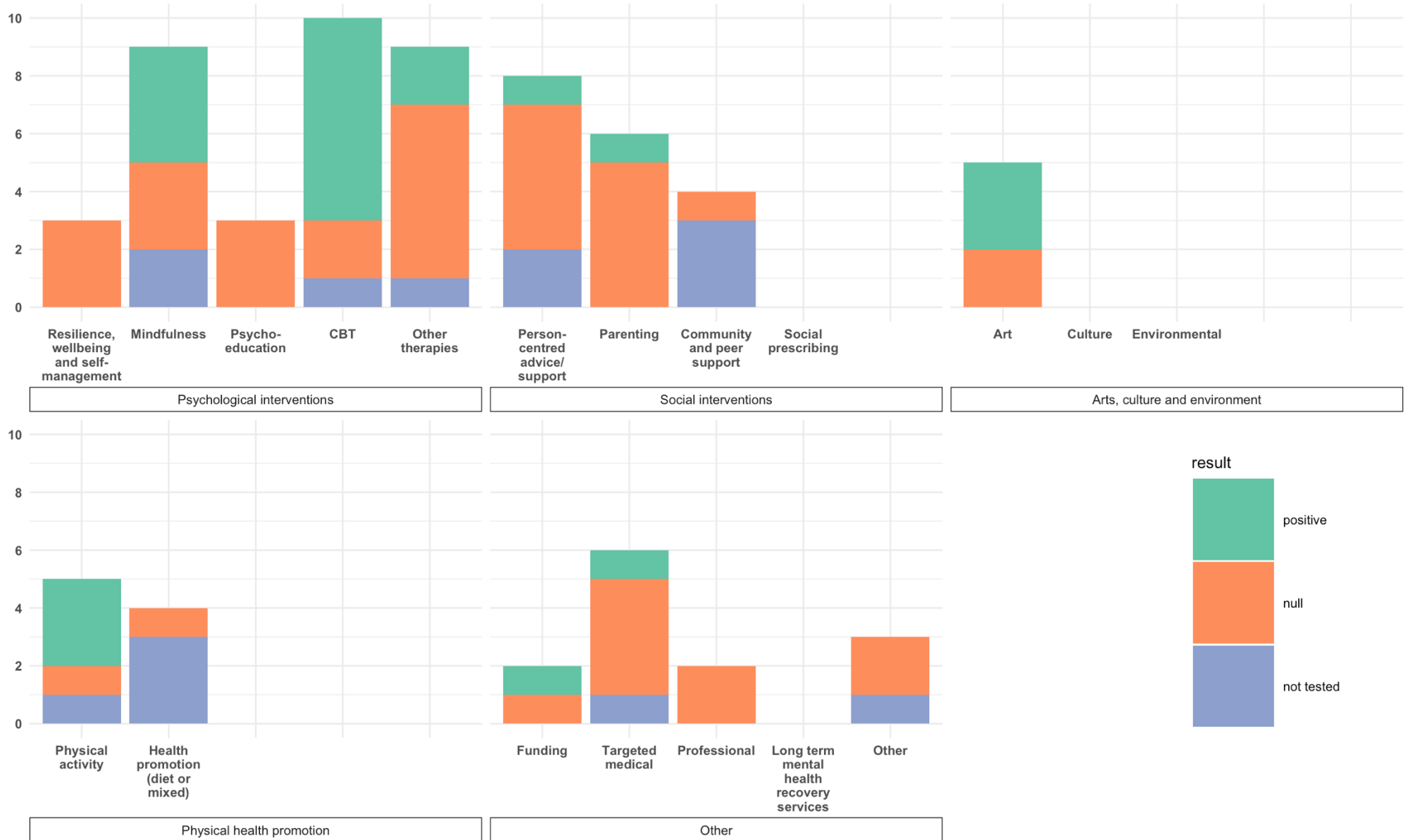
Question	Element	Response options
	<ul style="list-style-type: none"> There is baseline equivalence between the treatment and comparison group participants on key demographic variables of interest to the study and baseline measures of outcomes (when feasible). 	
	<p>Sample size:</p> <ul style="list-style-type: none"> The sample size is sufficiently large to test for the desired impact. This depends most importantly on the effect size, however a suggestion could be, for example, that a minimum of 20 participants have completed the measures at both time points within each study group. 	Yes (1) No (0) Can't tell (0) N/A (0)
	<p>Attrition:</p> <ul style="list-style-type: none"> A minimum of 35% of the participants completed pre/post measures. Overall study attrition is not higher than 65%. The study had clear processes for determining and reporting drop-out and dose. Differences between study drop-outs and completers were reported if attrition was greater than 10%. The study assessed and reported on overall and differential attrition. 	Yes (1) No (0) Can't tell (0) N/A (0)
	<p>Equivalence:</p> <ul style="list-style-type: none"> Risks for contamination of the comparison group and other confounding factors have been taken into account and controlled for in the analysis if possible. Participants were blind as to their assignment to the treatment and comparison group. There was consistent and equivalent measurement of the treatment and control groups at all points when measurement took place. 	Yes (1) No (0) Can't tell (0) N/A (0)
	<p>Measures:</p> <ul style="list-style-type: none"> The measures used were valid and reliable. This means that the measure was standardised and validated independently of the study, and that the methods for standardisation were published. Administrative data and observational measures may also have been used to measure programme impact, but sufficient Information was given to determine their validity for doing this. Measurement was independent of any measures used as part of the treatment. In addition to any self-reported data (collected through the use of validated instruments), the study also included assessment information independent of the study participants (e.g., an independent observer, administrative data etc) 	Yes (1) No (0) Can't tell (0) N/A (0)
Was the analysis appropriate?	<ul style="list-style-type: none"> The methods used to analyse results are appropriate given the data being analysed (categorical, ordinal/ratio, parametric/non-parametric, etc.) and the purpose of the analysis. 	Yes (1) No (0) Can't tell (0) N/A (0)

Question	Element	Response options
	<ul style="list-style-type: none"> • Appropriate methods have been used and reported for the treatment of missing data. 	
Is the evidence consistent?	<ul style="list-style-type: none"> • Are the findings made explicit? • Is there adequate discussion of the evidence both for and against the researcher's arguments? • Has the researcher discussed the credibility of their findings (e.g., triangulation, respondent validation, more than one analyst)? • Are the findings discussed in relation to the original research question? 	Yes (1) No (0) Can't tell (0) N/A (0)

Appendix F: Intervention types and effect on wellbeing for all studies (n=223)



Appendix G: Intervention types and effect on wellbeing for studies with control groups (n=79)



Appendix H: Study characteristics (n=209)

Study characteristics	N (%)
Evidence type	
Peer-reviewed publication	150 (71.8)
Report	53 (25.4)
Other (e.g. evaluation summaries and evidence briefings)	6 (2.0)
Age group ^a	
Children (0-10)	3 (1.4)
Adolescents (11-18)	22 (10.5)
Young adults (19-25)	76 (36.4)
Adults (26-59)	175 (83.7)
Older adults (60+)	63 (30.1)
Control group	
No	132 (63.2)
Yes	77 (36.8)
Randomisation (for studies with control group)	
Individual randomisation	33 (44.0)
No randomisation nor wait-list	18 (24.0)
Wait-list control group	13 (17.3)
Cluster randomisation	11 (14.7)
Wellbeing measure	
14-item WEMWBS	145 (69.4)
7-item SWEMWBS	64 (30.6)
Modifications to WEMWBS	
No	205 (98.1)
Yes	4 (1.9)
Examined WEMWBS scores by subgroup	
No	174 (83.3)
Yes	35 (16.7)
Assessment at additional follow-up points	
No	143 (68.4)
Yes	66 (31.6)
Economic evaluation results reported	
No	171 (81.8)
Yes	38 (18.2)
^a Percentages do not add up to 100% due to multiple age groups in studies (48% of studies)	

Appendix I1: Description of studies: Psychological interventions

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Resilience, wellbeing, and self-management					
Croft, 2021 ²¹	Staff working in a large Social Services team (n=13)	Reconnect to Innate Resilience: 6x 90min online didactic sessions to improve and educate about resilience over an 8 week period	Significant (wellbeing increased)		Moderate
Elston et al., 2019 ²²	Older people with complex multimorbidity (n=86)	Participants receive an initial 30-40 minute session with a co-ordinator (non-healthcare staff with training in goalsetting) to set goals for 'living well'. Co-ordinator then works with participant for next 12-weeks in resilience-focused coaching and advocating for local support services	Significant (wellbeing increased)		High
Iemmi et al., 2015 ²³	Adults with severe mental disorders who use secondary mental health services. (n=87)	Self-management Intervention.: A 2-day peer-led self-management workshop to teach goal-setting and problem-solving techniques, to empower people and to facilitate meeting with others and sharing of experiences. The workshop was followed by 6 half day workshops over three months, and 6 on-going peer group meetings over 6 months.	Significant (wellbeing increased)		Moderate
Inglis, 2013 ²⁴	Individuals seeing a mental health practitioner in Kirkintilloch (Scotland) (n=15)	Personal Asset Mapping: 1 to 1 session with a mental health practitioner developing a personal asset map (resources individuals have at their disposal) in a 1:1 setting	Not tested		Moderate
Kelley et al., 2018 ²⁵	Prisoners resident in HM Prison Onley (n=114)	Three Principles Correctional Counselling (3PCC): 10 weekly 3-hour classes on three Principles Correctional Counselling aimed to sustain inner health (3 principles: Universal Mind, consciousness, and thought)	Significant (wellbeing increased)	Not significant	Moderate
Martin et al., 2019 ²⁶	Parents of children with developmental disorders (n=137)	HOPE: 6 weekly 2.5hr self-management sessions	Significant (wellbeing increased)		Moderate
Martin et al., 2020 ²⁷	People living with cancer or recent cancer survivors (n=51)	iHOPE (Help to Overcome Problems Effectively): 6-week web-based course consisting of text, images, downloadable documents, and links to external websites, interactive activities (e.g., quizzes, self-monitoring tools, and diaries), forums and messaging facilities	Significant (wellbeing increased)		Moderate
Mental Health Foundation, 2017 ²⁸	Vulnerable adult male prisoners at HM Prison & Young Offenders' Institution Parc in Wales (n=50)	Weekly 2-3hr session for 4 weeks that was peer-facilitated and focus on: positive thinking, goal setting, managing wellbeing and behaviour, working with professionals, developing a personal 'toolbox'	Significant (wellbeing increased)		Moderate
Millar & Donnelly, 2013 ²⁹	Adults showing signs of mental health difficulties (n=109)	12 weekly 2hr sessions aiming to raise awareness and knowledge about how to protect mental health and wellbeing and to increase skills and personal resources	Significant (wellbeing increased)		Moderate
Mind Cymru, 2018 ³⁰	Older adults in urban and rural areas of Wales (n not reported)	My Generation: 8 weekly 1hr sessions of a resilience training programme	Not tested		Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Papadatou-Pastou et al., 2019 ³¹	Postgraduate and undergraduate students with minor to moderate psychological difficulties (n=13)	MePlusMe: A single full day workshop where university students were introduced to the MePlusMe system, an online psychological wellbeing and study skills support system and students were encouraged to revisit meaning material and practice what they had learnt over the follow up period	Not tested		Moderate
Pratt et al., 2013 ³²	People with lived experience of mental health difficulties (n=47)	Wellness Recovery Action Planning (WRAP): Weekly sessions (split over 2 or 4 weeks) of Wellness Recovery Action Planning, which is a tool for self-management and wellness planning	Not tested		Moderate
Rich et al., 2020 ³³	Students training to be medical doctors (n=18)	Individualised Wellbeing And Resilience for DoctorS (iWARDS): Brief in-person workshops to enhance self-care skills and help them manage their work-life balance and use of technology	Not significant		High
Robinson et al., 2019 ³⁴	People with long-term health conditions (diabetes, heart disease, and arthritis) (n=160)	6 weekly 2hr sessions of a mental health resilience course delivered by the charity Mind	Significant (wellbeing increased)		High
Robinson et al., 2015 ³⁵	Unemployed men (n=53)	Local Resilience (by Mind): 5 distinct projects delivered by local Mind centres aiming to improve resilience; projects lasted 2 weeks to 6 months consisting of various physical activity, arts, CBT, psychoeducation, and mindfulness elements	Significant (wellbeing increased)		High
The Health Foundation, 2017 ³⁶	Patients living with long-term health conditions, their families and NHS staff (n=203)	Optimising Strength & Resilience: One day workshop focusing on education, awareness-raising and behavioural change activities; committee work, change champions and strategy development were also part of the programme.	Significant (wellbeing increased)		High
Wild et al., 2020 ³⁷	Police, ambulance, fire, and search and rescue services personnel (n=427)	Mind Resilience Program: 6-week course consisting of a weekly 2.5hr group session providing information about mental health and experiential exercises drawn from stress management and mindfulness	Not significant	Not significant	High
Wright et al., 2021 ³⁸	People living with cancer or recent cancer survivors (n=26)	iHOPE (Help to Overcome Problems Effectively): 6-week web-based course consisting of text, images, downloadable documents, and links to external websites, interactive activities (e.g., quizzes, self-monitoring tools, and diaries), forums and messaging facilities	Not significant	Not significant	High
Mindfulness					
Beshai et al., 2016 ³⁹	Secondary school teachers and staff (n=89)	.b Foundations Course: 9 sessions (one presentation and 8 weekly 75-minute sessions) on mindfulness delivered by trained teachers	Significant (wellbeing increased)	Not significant	Moderate
Bostock et al., 2019 ⁴⁰	Healthy employees from two large UK companies (n=186)	Mindfulness app that offered 45 pre-recorded 10-20 minute guided audio meditations, participants asked to complete one meditation per day over 8-weeks	Significant (wellbeing increased)	Significant (wellbeing increased)	High
Fitzhugh et al., 2019 ⁴¹	All police employees across five participating forces (Avon and Somerset, Bedfordshire, Cambridgeshire, Hertfordshire, and South Wales) (n=605)	Headspace: Commercially available mindfulness app. User can decide which type and length of session to complete at any time, with no set route for completion of sessions.	Significant (wellbeing increased)	Not tested	High

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
	as above (n=204)	Mindfit Cop: A bespoke online 8-week self-paced mindfulness course for policing which offers mindfulness-videos, audios and documents using policing examples	Significant (wellbeing increased)	Not tested	as above
Flynn et al., 2020 ⁴²	Carers of people with intellectual disabilities	Be Mindful: Online mindfulness program which involves 10 online pre-recorded audio and video sessions	Significant (wellbeing increased)		High
	as above (n not reported)	Be Mindful+: In addition to main online mindfulness program, the second intervention group also had a trained peer mentor for support (3 x30min telephone calls)	Significant (wellbeing increased)		as above
Gammer et al., 2020 ⁴³	Mothers of infants under 1-year old (n=206)	Kindness for Mums Online: Interactive, online compassion-based intervention for new mothers, delivered over 5-to-6 weeks with one weekly 10-15min session	Not tested	Significant (wellbeing increased)	High
Kawadler et al., 2020 ⁴⁴	Healthy adults recruited via a recruitment agency who screened positive for stress (n=55)	The BioBase Programme: Participants were monitored for 4 weeks while wearing a wrist-worn BioBeam activity and heart rate monitor and to use the BioBase digital therapy app (e.g. deep breathing exercises, mood tracking, data from monitor) for at least 5 minutes per day and complete at least 14 daily 3-5minute modules sessions.	Significant (wellbeing increased)		Moderate
Kuyken et al., 2013 ⁴⁵	Young people aged 12-16 in 12 secondary schools (n=522)	The Mindfulness In Schools Programme: 9 weekly scripted lessons on mindfulness skills taught by teachers trained in the MiSP	Not tested	Significant (wellbeing increased)	Moderate
Mahoney-Davies et al., 2017 ⁴⁶	Adults with learning disabilities who attend a council-funded day support service (n=12)	10 weekly 2hr sessions to teach the Five Ways to Well-being (being with people, being active, noticing things around you, keep learning, giving to others)	Not significant		Moderate
Malinowski et al., 2017 ⁴⁷	Older adults (n=50)	Minimum of 10 min/day of meditation at least 5 times/week for 8 weeks and 4 90-min group sessions of psychoeducation, inquiry-based discussion and group mediation practice	Not significant	Not significant	High
McConachie et al., 2014 ⁴⁸	Support staff from care organisations working with individuals with intellectual disabilities who displayed challenging behaviour (n=65)	One day acceptance and mindfulness workshop	Not tested	Not significant	High
Millar et al., 2020 ⁴⁹	In-patients within the psychiatric rehabilitation service (n not reported)	20-30min mindfulness group sessions 3x a week for 5 months or weekly over 18 months, followed by reflection and discussion	Not significant		Moderate
Mitchell & Heads, 2015 ⁵⁰	Adults with a range of chronic psychological issues (e.g. depression, anxiety, pain, PTSD, personality disorder) (n=28)	Living Mindfully Mindfulness-Based Stress Reduction Programme: 5 weekly 2.5hr sessions providing training in 4 mindfulness practices	Significant (wellbeing increased)		Moderate
Montero-Marin et al., 2021 ⁵¹	Secondary school teachers (n=166)	8 sessions of mindfulness training with 20 minutes of a daily home mindfulness practice	Significant (wellbeing increased)		High
Roulston et al., 2018 ⁵²	Undergraduate social work students (n=30)	Six weekly Mindfulness sessions delivered by an experienced Mindfulness trainer	Significant (wellbeing increased)	Significant (wellbeing increased)	Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Strauss et al., 2021 ⁵³	People with moderate-to-severe depression (n=54)	Clinician supported use (6 weekly sessions) of the mindfulness smartphone app, Headspace, where 30 sessions could be completed within the 60-day follow-up period	Significant (wellbeing increased)		Moderate
Whitton et al., 2019 ⁵⁴	Patients at a mental health day hospital in Fife, Scotland (n=68)	8-weekly 2-hour mindfulness course delivered by clinician researchers	Significant (wellbeing increased)		High
Psychoeducation					
Bateman & Fonagy, 2019 ⁵⁵	Families of people with Borderline Personality Disorder (n=56)	Mentalization-Based Treatment Families and Carers Training Support (MBT-FACTS): Five 1-1.5-hour sessions delivered by family members who have been trained to deliver psychoeducation, mentalization and mindfulness-based exercises, and problem-solving skills	Significant (wellbeing increased)	Not significant	High
Chiocchi et al., 2019 ⁵⁶	Carers of people with severe and enduring mental illness (n=60)	Up to 20 2-hour psychosocial education sessions for carers	Significant (wellbeing increased)		High
Kidger et al., 2021 ⁵⁷	Teachers and year 8 students in 25 mainstream secondary schools in South West England and Central South/South East Wales (n=1722)	Well-being in Secondary Education (WISE): Consisted of: i) 2-day standard Mental Health First Aid (MHFA) course for 8% of staff; ii) 1- day MHFA course for teachers in pastoral roles; iii) 1- hour mental health awareness session offered to all staff [WEMWBS assessed in teachers]	Not tested	Not significant	High
	as above (n=2700)	as above [WEMWBS assessed in students]	Not tested	Not significant	as above
McCoy et al., 2019 ⁵⁸	Parents and carers who either had an adverse childhood experience or their child did (n=14)	Adverse Childhood Experiences (ACEs) Recovery Toolkit Programme: Trained facilitators, who had attended a two-day training workshop, delivered the Adverse Childhood Experiences (ACEs) Toolkit to parents/carers who had experienced ACEs to further their understanding of how ACEs could impact them and their children and used a trauma-based psychoeducation approach so parents could develop their resilience and strategies to reduce the potential impact of ACEs on children	Significant (wellbeing increased)		Moderate
Mirea et al., 2021 ⁵⁹	Adults presenting with depressive symptoms (n=1105)	Participants completed a comprehensive 635 question web-based mental health assessment over 6 sessions. They then received a results report suggesting likely mood and comorbid disorders as well as tailored psychoeducation about relevant disorders and help sources.	Significant (wellbeing increased)		High
Perry et al., 2018 ⁶⁰	Carers in the Charedi Orthodox Jewish community that came in to contact with mental health in their capacity as a caregiver (n=33)	4 sessions of a culturally tailored psychoeducational group intervention delivered by a Rabbi and psychotherapist focusing on mental health promotion and prevention.	Significant (wellbeing increased)		Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Smallwood et al., 2017 ⁶¹	Caregivers of patients in psychosis services (n=23)	Caregivers of people with psychosis were offered i) telephone support, ii) psychoeducation groups, iii) a needs assessment, and the patient with psychosis was given 1-6 sessions of 0.5-1hr of psychoeducation around psychosis, treatment and management, communication, problem solving and crisis planning	Not significant		Moderate
Spandler et al., 2013 ⁶²	Men with mental health needs (n=102)	It's a Goal: 11-week group-based cognitive behavioural programme that aimed to promote positive mental health using football metaphors (e.g. 11 matches= 11 sessions, players=service users, coaches=mental health workers)	Significant (wellbeing increased)		Moderate
Thompson et al., 2016 ⁶³	Carers of people with hoarding disorder (n=11)	6 weekly 2 hr group psychoeducational sessions facilitated by clinical psychologists	Significant (wellbeing increased)		Moderate
Therapy (CBT)					
Bhutani, 2015 ⁶⁴	Employees of an NHS Mental Health and Community Trust or a Local Authority (n=75)	Looking After Me Looking After You (LAMLAY): 3 3-hour or 4 2-hour weekly group CBT-based sessions	Significant (wellbeing increased)		High
Bradley et al., 2018 ⁶⁵	Young people at ultra-high risk of psychosis, identified through NHS mental health services (n=11)	SleepWell: 8 weekly sessions delivered by a clinical psychologist, using CBT techniques to improve sleep	Not tested		Moderate
Brown et al., 2019 ⁶⁶	Adolescents attending school in the London boroughs of Lambeth and Southwark who self-referred to attend a workshop to help depression and anxiety (n=155)	DISCOVER' self-referral stress management workshop programme: One day face-to-face CBT workshop delivered by clinical psychologists, followed up with a personalised 20-30 min telephone goal review and up to 2 further goal reviews within 12-weeks	Significant (wellbeing increased)	Significant (wellbeing increased)	High
Carl et al., 2020 ⁶⁷	Adults with a diagnosis of generalised anxiety disorder (n=256)	Daylight: A fully automated personalised digital CBT program available on smartphones. A virtual therapist guides the participant through 4 modules (around 20 mins in length), and were suggested to use the app every day for 6 weeks	Not tested	Significant (wellbeing increased)	High
Espie et al., 2019 ⁶⁸	Adults with chronic insomnia (n=1711)	Digital Insomnia therapy to Assist your Life as well as your Sleep (DIALS) study: 6 20min sessions of digital CBT delivered using the Sleepio app over 12 weeks	Significant (wellbeing increased)	Significant (wellbeing increased)	High
Freeman et al., 2015 ⁶⁹	People with psychosis and persecutory delusions (n=150)	6 individual 1hr sessions of CBT aiming to reduce worry	Not tested	Significant (wellbeing increased)	High
Freeman et al., 2014 ⁷⁰	People with persistent persecutory delusions (n=30)	6 individual sessions of CBT over 8 weeks, provided by a clinical psychologist	Significant (wellbeing increased)	Significant (wellbeing increased)	High
Hayward et al., 2018 ⁷¹	People with a psychiatric condition and who hear voices (n=91)	Cognitive Behavioural Therapy for Psychosis (CBTp): 4 1-hr sessions of Coping Strategy Enhancement, a form of Cognitive Behavioural Therapy for Psychosis, with a clinical psychologist, counselling trainee, mental health nurse or occupational therapist	Not significant		High

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Hazell et al., 2018 ⁷²	Patients with various diagnoses from NHS mental health services who were distressed by hearing voices. (n=28)	Guided self-help cognitive-behaviour Intervention for VoicEs (GiVE): 8 weekly sessions of guided self-help CBT delivered by a clinical psychologist over a maximum of 12 weeks, based on the 'overcoming distressing voices' CBT self-help book.	Not tested	Significant (wellbeing increased)	High
Johns et al., 2019 ⁷³	Patients with severe mental illness (n=294)	16 weekly or fortnightly 1hr CBTp therapy sessions over 6-9 months with a senior clinician	Significant (wellbeing increased)		Moderate
Loucas et al., 2020 ⁷⁴	Adolescents with anxiety and/or depression (n=48)	DISCOVER: A one day group CBT workshop with individualized telephone follow-up	Not tested	Not significant	High
Miller et al., 2021 ⁷⁵	Adults with moderate to severe symptoms of Generalized Anxiety Disorder (n=20)	Daylight: Digital CBT-based programme consisting of 4 10-20 minute modules and optional practice exercises	Significant (wellbeing increased)		Moderate
Powell et al., 2013 ⁷⁶	Community-dwelling adults; some portfolios targets those with multiple and complex needs, young people, older people and early intervention in pregnancy and first years. (n=3070)	MoodGYM: Internet-based self-help programme teaching 5 modules of cognitive-behavioural skills; participants were encouraged to complete one module a week and sent an email reminder	Significant (wellbeing increased)	Significant (wellbeing increased)	High
Powell et al., 2020 ⁷⁷	People with social anxiety symptoms not currently receiving treatment (n=0)	E-couch: 6 modules of a web-based unguided self-help intervention that used principles of cognitive behavioural therapy to help social anxiety symptoms over a 6-week period.	Not significant		High
Sheaves et al., 2018 ⁷⁸	Patients admitted at acute crisis to a psychiatric hospital (n=40)	Oxford Ward sLeep Solution (OWLS): a 2-week therapy programme consisting of CBT for insomnia, sleep monitoring and light-dark exposure (minimum of 5 sessions)	Not tested	Not significant	High
The Health Foundation, 2014 ⁷⁹	Patients admitted to a single male acute psychiatric inpatient ward (n=40)	Sleep treatment delivered by psychologist over 2-week period consisting of: i) cognitive behavioural techniques for insomnia; ii) sleep watches (Basis Peak) to promote patient discussion about their sleep; and iii) light therapy to stabilise circadian rhythms	Not tested	Not tested	High
Turkington et al., 2018 ⁸⁰	Relatives and friends of people with psychosis (n=77)	2 (standard) or 5 (enhanced) days of a CBT-informed care in psychosis workshops	Significant (wellbeing increased)		High
Widnall et al., 2020 ⁸¹	Adults with a primary diagnosis of depression or anxiety (n=618)	Improving Access to Psychological Therapy (IAPT): 8-20 sessions of high intensity individual CBT	Significant (wellbeing increased)		High
Therapy (other)					
Allward et al., 2017 ⁸²	People with mild-to-moderate dementia (n=53)	Cognitive Stimulation Therapy: 10 weekly 90-minute group sessions held at community healthcare clinics, facilitated by assistant psychologists, and includes a range of stimulating discussion, games and tasks	Not significant		High
Bacon et al., 2018 ⁸³	Patients in secondary mental health care services (n=47)	Emotional Resources Group: 6 2.5hr emotion regulation group sessions delivered by a psychologist and a nurse	Significant (wellbeing increased)		Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Brown et al., 2020 ⁸⁴	Healthcare staff of a Welsh health board (n=124)	Champions for Health: 12-week online self-guided Acceptance and Commitment Therapy intervention (recommended to spend 20 minutes/day, 3 days/week) as well as one of three additional interventions (i) information on behaviour change, ii) 5 premade wellbeing films, and iii) a static social norm message)	Not tested		Moderate
Cheshire et al., 2016 ⁸⁵	Stressed or distressed men who were patients at a London-based GP surgery (n=102)	Atlas Men's Well-being Pilot Programme: Offered counselling (12 weekly 1-hour sessions of integrative/humanistic counselling), acupuncture (6 weekly 30min sessions) or both	Significant (wellbeing increased)		High
Collins et al., 2012 ⁸⁶	University employees (n=152)	Received 1 to 19 50-min sessions from the University Counselling Service, depending on needs	Significant (wellbeing increased)	Not tested	Moderate
Dunn et al., 2019 ⁸⁷	People currently experiencing a major depressive episode (n=11)	Augmented Depression Therapy (ADepT): Initial assessment of 90 mins, 15-weekly 1hr individual ADT sessions with up to 5 booster sessions with a clinical psychologist or an accredited nurse therapist	Significant (wellbeing increased)		High
Durcan et al., 2018 ⁸⁸	People with history of self-harm in three prisons in North East England (n=87)	Single group session with 2 therapy dogs (activities could include sitting and petting, throwing a ball, etc)	Significant (wellbeing increased)		Moderate
Flaherty-Jones et al., 2016 ⁸⁹	Older adults accessing mental health services (n=35)	Steps to Recovery: 8-weekly 1.5hr group-based therapy sessions, facilitated by two clinical mental health staff.	Significant (wellbeing increased)		High
Grajfoner et al., 2017 ⁹⁰	University students from Heriot-Watt University (n=127)	Therapet: Single 20-minute group session interacting with up to 6 dogs (combined group interacting with dog only and interacting with dog and their handler)	Significant (wellbeing increased)	Significant (wellbeing increased)	High
Hartley, 2017 ⁹¹	Local people with psychological distress (n=47)	Social enterprise outreach wellbeing service that provided psychotherapy sessions from trained wellbeing workers or direct participants to local partner organisations	Significant (wellbeing increased)		High
Hemmings et al., 2021 ⁹²	Adults diagnosed with GAD. (n=10)	Biobase ACT programme: 6 5-minute modules of a digital ACT programme completed within 2 weeks	Not significant		Moderate
Jolley et al., 2020 ⁹³	Services users and/or their carers from community psychosis services (n=42)	4 weekly 2hr group ACTp sessions, with two additional sessions at 10 and 12 weeks	Not tested	Not significant	High
Kevern & Hill, 2017 ⁹⁴	Patients attending primary care centres with mental health needs (n=107)	Chaplains for Wellbeing: Counselling sessions with trained chaplains concerning spiritual wellbeing	Significant (wellbeing increased)		Moderate
MacDonald, 2017 ⁹⁵	Patients attending Regent Gardens Medical Practice with mental health needs (n=160)	Primary Care Chaplaincy: Counselling sessions with practice chaplain; session duration (up to 1hr) and frequency determined by patient need	Significant (wellbeing increased)	Not significant	Moderate
Majumdar et al., 2019 ⁹⁶	Adult stroke survivors (n=53)	ACTivate Your Life after Stroke: 4 weekly 2hr didactic PowerPoint group ACT sessions	Not tested	Significant (wellbeing increased)	High
Northcott et al., 2021 ⁹⁷	Adults at least 6 months post stroke with aphasia (n=32)	SFBT: Up to 6 sessions of individual solution-focused brief therapy sessions over 3 months	Not tested	Not significant	Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Priebe et al., 2015 ⁹⁸	People with psychosis (n=177)	DIALOG+: Monthly use of DIALOG+, a computer-assisted intervention, where patients rate their life and treatment satisfaction. Clinicians use scores to provided treatment received solution-focused therapy	Not significant	Not significant	High
Schrank et al., 2016 ⁹⁹	People with psychosis (n=84)	WELLFOCUS Positive Psychotherapy: 11 weekly 90-minute sessions of WELLFOCUS Positive Psychotherapy delivered in groups by trained psychotherapists	Significant (wellbeing increased)	Not significant	High
Strauss et al., 2018 ¹⁰⁰	People with obsessive compulsive disorder (n=37)	10 2hr sessions delivered by a clinical psychologist on mindfulness-based exposure and response prevention	Not tested	Not significant	High

Appendix I2: Description of studies: Social interventions

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Person-centred information and/or support					
Battrick et al., 2014 ¹⁰¹	Individuals with multiple needs and exclusions (e.g. homelessness, substance misuse, mental health problems and offending) (n=36)	Making Every Adult Matter: Patient engages with coordinator, who ensures the best possible route through existing services (e.g. access to housing, treatment for substance misuse, or mental health assessments)	Significant (wellbeing increased)		Moderate
Beynon et al., 2020 ¹⁰²	Older adults living in Bristol who are likely to be lonely and isolated (n=132)	Community Navigator: Trained 'Community Navigators' work 1:1 on a short-term basis visiting participants in their homes or via phone calls, providing free information and signposting for people experiencing isolation or loneliness, and well as to other services such as financial and safety	Significant (wellbeing increased)		High
Borschmann et al., 2013 ¹⁰³	Adults with borderline personality disorder (n=49)	A 60min meeting to develop a Joint crisis plan (with key workers/family members), which was then emailed within 24 hours to the participants and key contacts.	Not significant	Not significant	High
British Red Cross, 2019 ¹⁰⁴	Survivors of trafficking for individuals from outside of the EU (n=53)	Sustainable integration and Trafficked human beings through proactive identification and Enhanced Protection (STEP): Multiple organisations delivered complementary models of longer- term person-centred support over a 12-15 month period	Not tested		Moderate
Cheshire et al., 2018 ¹⁰⁵	Social housing tenants in London (n=358)	Two interventions: 1) Individuals received a signposting intervention from the social housing provider which enabled the manager to identify additional needs for the participant. After the initial appointment, contact was made every 3 months for 18 months.	Not tested	Not significant	High
	as above (n=174)	2) a more-intensive intervention, 'handholding', which was delivered by an inhouse team of health and well-being support workers, who conducted baselines assessment and identified further needs of the participants and then helped participants access further services (such as by arranging travel). Participants were visited between weekly and monthly for 18-months	Significant (wellbeing increased)	Significant (wellbeing increased)	as above
Dalkin et al., 2019 ¹⁰⁶	People attending Citizens Advice service including i) those with severe and enduring mental health issues; ii) those referred through their GP; and iii) young adults (n=191)	Intensive advice services delivered by a branch of Citizens Advice in the North East of England over 2-months to 2-years	Significant (wellbeing increased)		High
Family Mosaic, 2016 ¹⁰⁷	Residents of Family Mosaic, a housing provider in London and the South East. (n=0)	Health Begins at Home: Intervention 1: signposted to health and wellbeing services by their neighbourhood manager;	Not significant	Not significant	High

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
	as above (n=0)	as above: Intervention 2: received intensive personalised support from a dedicated health and wellbeing support worker, including being accompanied to relevant local services.	Not significant		as above
Fisk, 2017 ¹⁰⁸	Ex-seafarers in Merseyside (n=28)	Better Health for Ex-Seafarers: A series of brief interventions (no further information) delivered by a Health Project Advisor to improve participants mental and physical wellbeing and nurture self-management	Not significant		Moderate
Freeman et al., 2016 ¹⁰⁹	People with persistent persecutory delusions (n=10)	Feeling Safe: 6-month Feeling Safe programme consisting of an individual treatment meeting and a personalised 'menu' of weekly 1 hr treatment interventions for the participant to choose from (e.g. improving sleep, improving self-confidence, feeling safer)	Not significant		Moderate
Fullwood, 2018 ¹¹⁰	Older people with multiple long-term conditions who are at the greatest risk of avoidable hospital admissions. (n=932)	Personalised Integrated Care Programme: Coordinated, person-centred community-based approach using primary care-led multidisciplinary teams	Significant (wellbeing increased)		High
Hill-Dixon et al., 2018 ¹¹¹	Homeless people living in South-West London (n=60)	Homeless Health Link: 1:1 professional and volunteer support to help participants access healthcare services; weekly group sessions to improve health and wellbeing knowledge	Not tested		Moderate
Lloyd-Evans et al., 2020 ¹¹²	Individuals with anxiety or depression using secondary mental health services (n=40)	The Community Navigators Programme: 10 1hr meetings over a 6month period with a Community Navigator who provides lessons/guidance to lonely individuals in terms of exploring their interests more and forming more social relationships with those in their community. Access to 3 group sessions is also given.	Not tested	Not tested	Moderate
Lovell et al., 2018 ¹¹³	Patients with severe mental health problems (n=604)	A shared decision-making intervention consisting of a 2-day course, 6 hours of follow up supervision and 8 hours of optional self-directed learning	Not tested	Not significant	High
Maxwell et al., 2018 ¹¹⁴	Patients with Long Term Health Conditions (n=67)	Patient Centred Assessment Method: Nurses assess patient using the Patient Centred Assessment Method (health and wellbeing; social environment; health literacy and communication; service co-ordination) and can then refer or signpost to other professionals or agencies	Not tested	Not tested	High
Reidy et al., 2013 ¹¹⁵	People with mental health problems (n=9)	Short-term social care interventions delivered by clinicians, local authorities and the third sector, targeting individual's mental health problems	Not significant		Moderate
Smith et al., 2012 ¹¹⁶	People with mental health problems (n=25)	Advocacy in Wirral: Peer-led service which provides advice on welfare benefits, as well as advocacy on aspects such as healthcare, drug and alcohol, and hospital care	Significant (wellbeing increased)		Moderate
Thiel et al., 2013 ¹¹⁷	Patients with mild to moderate health problems and complex social needs (n not reported)	The Sandwell Esteem Team: Holistic co-ordinated care that includes health screening, psychiatric liaison, co-morbidities and medication management, home treatment, ambulatory pathway to home	Significant (wellbeing increased)		Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Woodhead et al., 2017 ¹¹⁸	Adults accessing co-located welfare advice services in healthcare settings (n=901)	Welfare benefits and debt advice service co-located in healthcare settings	Not tested	Not significant	Moderate
Parenting					
Bjornstad et al., 2021 ¹¹⁹	Primary carers of children with additional needs or disability (n=92)	Healthy Parent Carers: Above (offered as 6 weekly 4-hour sessions or 12 weekly 2-hour sessions)	Not tested	Not significant	High
Borek et al., 2017 ¹²⁰	White, female carers of children with additional needs or disability (n=7)	Healthy Parent Carers: 6 weekly 3-hour sessions delivered by peer facilitators consisting of health promotion education, group activities, discussions and action planning	Not tested		Moderate
Bradley et al., 2020 ¹²¹	Parents living in temporary accommodation with self-identified difficulties related to parenting a child aged 2–11 years. (n=13)	Empowering Parents, Empowering Communities: Peer-led parenting programme consisting of 10 weekly sessions that comprised of facilitator demonstration, role play, visually aided discussions and review of homework tasks.	Significant (wellbeing increased)		Moderate
Connect Centre University of Central Lancashire, 2021 ¹³⁵	Female survivors of domestic violence and abuse (n=35)	Roadmap Programme: SafeLife: Five strands of interventions provided a 'whole family' approach for survivors, children and perpetrators	Not significant		Moderate
Cullen et al., 2013 ¹²²	Parents (no further detail) (n=4231)	Parenting Early Intervention Programme: Interventions that made up the Parenting Early Intervention programme were all delivered to groups of parents, but the courses varied in length from five 2-hour weekly sessions to 17-weekly 2-hour sessions	Significant (wellbeing increased)		High
Department for Digital, Culture, Media & Sport, 2019 ¹²³	Parents of children aged 2-11 who attend local EPEC hubs across England (n=348)	Being a Parent: 8 weekly 2-hr parent-delivered parenting sessions aimed at empowering participants to use positive behaviour management strategies and manage parental stress.	Significant (wellbeing increased)		Moderate
Fisher & Burchett, 2019 ¹²⁴	Single parents in Wales (n=38)	Wellbeing Workshops: 6 weekly or biweekly themed sessions to equip single parents with tools and skills to promote self-care/support mental health and wellbeing, discuss issues that impact mental health and wellbeing and provide a single parents-only social network	Not tested		Moderate
Fisher & Gingell, 2016 ¹²⁵	Single parents in Cardiff and Newport, Wales (n=39)	Creating Connections: Programme consisted of: i) 6 weekly 4hr sessions offering skills training in goal setting, action planning and problem solving; ii) ongoing peer support; iii) support in developing individual and community goals; iv) other training and volunteering options	Significant (wellbeing increased)		Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Gray et al., 2018 ¹²⁶	Parents with concerns about their child(ren)'s behaviour (n=4942)	Participants in the study had received one of 3 parenting programs. 1) Incredible Years was for parents of children aged 8-13 years old and involved 18-22 weekly group sessions of 2-2.5 hours focused on teaching parents how to manage child's behavioural problems. 2)Triple P was for parents of 0-16 year olds and aimed to increase skills and confidence in handling child's behaviour through positive parenting over 8 2-hour weekly sessions. 3) STOP was an 11-week program for parents of children aged 11-16 aiming to help parents better communicate with their children	Significant (wellbeing increased)		Moderate
Harwood et al., 2021 ¹²⁷	Parents experiencing difficulties in managing their infant aged 0-12 months (n=88)	Baby and Us: Peer-led early parenting programme consisting of 8 weekly 2 hr sessions with interactive learning methods to improve parental knowledge	Significant (wellbeing increased)		High
Hutchings et al., 2017 ¹²⁸	Families with a child aged between 12 and 36 months living in Flying Start areas across Wales (n=89)	The Incredible Years Toddler Parenting Programme.: 12 weekly sessions using social learning theory principles to underpin the basic parent programme	Significant (wellbeing increased)	Significant (wellbeing increased)	High
Institute of Public Care Oxford Brookes University, 2020 ¹³⁶	Parents/carers of children who have been exposed to domestic abuse or violence (n=154)	Opening Closed Doors (Safety, Trust and Respect (STAR) for children; Integrated Women's Support (IWS) for the female parent/carer; the Domestic Abuse Perpetrator Programme (DAPP) for the male parent/carer): Whole family interventions that can be delivered in 1:1 group format. STAR is a 10-week program for children to explore their feelings around domestic abuse, IWS is a 20 -week program for females focused on risk management, safety planning, mental health, self-esteem, parenting and support networks. DAPP is a 20-week behaviour change program using the RESPECT principles to facilitate men ending abusive behaviours towards female partners.	Significant (wellbeing increased)		Moderate
Jones et al., 2016 ¹²⁹	Mothers of infants aged 2-16 weeks (n=80)	The Incredible Years Toddler Parenting Programme.: 8 weekly 2hr sessions aimed to improve parenting skills	Not significant	Not significant	High
Knibbs et al., 2016 ¹³⁰	Carers with a child aged 5-12 in placement (n=59)	Keeping Foster and Kinship Carers Supported: Group training programme (16 weekly 90 min sessions) aiming to improve the skills and confidence of foster and kinship carers	Not significant	Not significant	Moderate
Lindsay. et al., 2011 ¹³¹	Parents of young people aged 8-13 years demonstrating or at risk of developing behavioural difficulties receiving 1 of 3 interventions via the Parenting Early Intervention Pathfinder (n=237)	Incredible Years: 17 weekly 2hr sessions aiming to enhance effective, positive parenting	Not tested		Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
	as above (n=487)	Triple P Positive Parenting Program Level 4: 8 weekly 2hr sessions focusing on parental management of child behaviour and reduction of parental stress.	Not tested		as above
	as above (n=347)	Strengthening Families, Strengthening Communities: 12 weekly 3hr sessions for minority, ethnic groups targeting the development of effective parenting skills.	Not tested		as above
Lindsay & Totsika, 2017 ¹³²	Parents of children aged 0–6 years in three local authorities in England. (n=656)	CANparent Trial: 12 universal parenting programmes aiming to improve parenting skills with varied delivery models (one of: face to face groups, face to face 1:1, blended face-to-face and online learning, only online) and length (range: weekly sessions over 2-10 weeks)	Significant (wellbeing increased)		High
Robertson et al., 2016 ¹³³	Parents or carers of overweight or obese children (n=113)	Families for Health: 10 weekly 2.5hr sessions educating on parenting skills, social and emotional development and healthy eating	Not significant	Not significant	High
Simkiss et al., 2013 ¹³⁴	Parents with children aged 2-4 years living in the catchment area of 'Flying Start' early years centres (n=245)	Family Links Nurturing Programme: 10 week universal parenting skills programme consisting of weekly 2 hr sessions	Not tested	Not significant	High
Community and peer support					
Chakkalackal & Kalathil, 2014 ¹⁴¹	Older adults with dementia living in extra care housing (n=21)	Weekly peer support groups for 6-months, which were led by an experienced facilitator. Each week there was a different focus or activity, such as creative writing and using technology	Not significant		Moderate
Get Set to Go Research Consortium, 2017 ¹⁴³	Adults with mental health problems (n=798)	Get Set to Go Programme (Local delivery): Tailored peer support and 1 to 1 advice delivered by 8 local Minds across four priority regions.	Not tested	Not tested	Moderate
Jones et al., 2021 ¹⁴⁴	Older community-dwelling adults in Bristol (n=865)	Bristol Ageing Better Projects: A city-wide programme with a wide range of initiatives to promote community involvement, participation in social activities and local decision-making, and personal support.	Significant (wellbeing increased)		Moderate
Jones et al., 2015 ¹⁴⁵	Older adults in Plymouth (n=93)	Plymouth SeniorNet: Lessons from volunteers (~12 hours over 8 visits) on how to use the internet either in small groups or at home 1:1 sessions.	Significant (wellbeing increased)		High
Marshall et al., 2020 ¹⁴²	Adults with moderate or mild aphasia caused by stroke (n=46)	Fortnightly 1.5hr social support group intervention sessions aimed to promote wellbeing and communicative success	Not significant	Not significant	High
Mental Health Foundation, 2018 ¹⁴⁰	Older adults living in retirement or extra care housing (n=13)	Standing Together: Weekly session for 6 months that provided peer support via miscellaneous activities aimed to increase participation and aid cognitive stimulation (E.g. film quiz, discussing what to do if having a bad day)	Not significant		Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Moreton et al., 2018 ¹⁴⁸	Older adults living in Birmingham who are isolated or at risk of isolation (n=434)	Ageing Better in Birmingham: Asset-based approach that aims to increase active citizenship and reduce isolation; programme elements include: i) self-organising groups of volunteers supporting isolated individuals, ii) Ageing Better hubs; iii) funding for activities; iv) service directory to help individuals find local support and activities; v) local action plans to create longer-term change; vi) supporters scheme for businesses/organisations; vii) experienced expert group who shape programme	Not tested		Moderate
Panayidou et al., 2020 ¹³⁹	PhD students (n=44)	Weekly 90 minute sessions for PhD students aiming to improve wellbeing and confidence in timely PhD completion lasting for eight weeks	Not tested		Moderate
Panayiotou et al., 2020 ¹³⁸	Young people in Years 7-8 that report at least one indicator of an emerging mental health difficulty (a mild or moderate emotional, behavioural, attention, or relationship difficulty) as assessed by school staff or self-nomination. Mentored by young people in Years 9-10 (n=137)	More than Mentors: Cross-age peer mentoring program (1.5 hr weekly session over a 0-12 week period), where an older pupil mentors a younger pupil with group activities, 1 to 1 mentoring working through a standardised toolkit of resources [WEMWBS assessed in mentees]	Not significant	Not tested	Moderate
	Young people in Years 9-10 who attend two-day mentor training (n=120)	as above [WEMWBS assessed in mentors]	Not significant	Not tested	as above
Parsfield et al., 2015 ¹⁴⁷	Community residents (n not reported)	Connected Communities: Programme that works with local people to build projects that support social connections	Not tested		Moderate
Tavistock Relationship, 2019 ¹³⁷	Children affected by their parent's separation and/or conflict (n=58)	1hr weekly sessions for 8-10 weeks consisting of a mutual-aid peer support group that included group work, 1-1 activities and discussions.	Significant (wellbeing increased)		High
The Health Foundation, 2015 ¹⁴⁶	Individuals with severe Chronic Obstructive Pulmonary Disease (COPD) in Coventry (n=45)	Respiratory Innovation: Promoting Positive Life Experience: An informal weekly afternoon clinic/education session with social activities such as bingo, quizzes, singing and seated yoga over a 6-month period	Significant (wellbeing increased)		Moderate
Social prescribing					
British Red Cross, 2019 ¹⁵⁵	Older people who feel loneliness or socially isolated, across the UK (n=338)	Community Connectors programme: Social prescribing service that signposts older people to range of groups and activities in local areas, including provision of emotional and practical support.	Not tested		Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Bromely by Bow Centre, 2017 ¹⁴⁹	People living with and beyond cancer (n not reported)	4 levels of social prescribing support were offered to the participants: i) telephone contact to introduce service and assess needs; ii) signposting and referral to further services; iii) face-to-face 1 hour long assessment in a community setting where participant wellbeing is explored and goals identified, actions agreed upon and referrals or signposting offered; iv) an additional 3 further 1-hour sessions if needed	Not significant		Moderate
Dayson & Leather, 2018 ¹⁵⁰	People referred by the GP as potentially benefiting from additional socially- focused support (n=206)	Community Connector finds out what the participant is interested in, identify what services and activities are available locally that fit those interests, and help the participants access them	Not tested		Moderate
Giebel et al., 2021 ¹⁵¹	People living with dementia and family carers (n=25)	Happy and Healthy: Socially prescribed weekly 60min classes involving light physical activity, mindfulness and games, over a 6-month period	Significant (wellbeing increased)		Moderate
Morton et al., 2015 ¹⁵⁴	Adults with mild to moderate mental health problems (n=136)	Consultation with service user and social prescribing of 1-3 sessions of 6 courses (meditation, painting, photography, jewellery, arts & crafts, pottery)	Significant (wellbeing increased)		Moderate
Peschey et al., 2021 ¹⁵²	Primary care patients with psychosocial needs referred to social prescribing scheme (n=63)	Patients were referred by link worker to 12 free sessions of the Luton Social Prescribing Scheme which involved physical activities, social activities and creative activities.	Significant (wellbeing increased)		Moderate
Southmead Development Trust et al., 2018 ¹⁵³	Patients attending 6 GP practices in Bristol (n=93)	Community Webs: Project coordinator and link-workers based in GP practices use social prescribing to enable and equip patients to access social activities and non-medical support services available in their local community	Significant (wellbeing increased)		Moderate

Appendix I3: Description of studies: Arts, culture, and environment

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Art					
Barker & Winship, 2016 ¹⁵⁶	People recovering from substance misuse problems (n=4)	Laughing Matters: Comedy workshops led by a professional comedian over 4 weeks, where participants developed, wrote and performed a stand-up comedy routine	Not significant		Moderate
Clift et al., 2017 ¹⁵⁷	Adults with mental health issues (n=25)	The West Kent and Medway Project: Weekly singing groups in community venues for 6 months	Significant (wellbeing increased)		High
Crone et al., 2017 ¹⁵⁸	Individuals with a current or previous diagnosis of cancer (n=17)	Flourish programme: 8 weekly art course sessions in a variety of mediums	Significant (wellbeing increased)		Moderate
Crone et al., 2018 ¹⁵⁹	Individuals with: i) anxiety, depression or stress; ii) low self-esteem, confidence or overall wellbeing; iii) and chronic illness or pain (n=1258)	Art Lift: Weekly art class for 10 weeks taught on a single topic (e.g., poetry, ceramics, drawing, mosaic, painting)	Significant (wellbeing increased)	Not significant	Moderate
Efstathopoulou & Bungay, 2021 ¹⁶⁰	Adolescents at risk of behavioural or emotional problems in the East of England (n=65)	Arts on Prescription (AoP): 10-weekly 2hr visual art workshops delivered in schools	Significant (wellbeing increased)		High
Fancourt et al., 2015 ¹⁶¹	Adults with affective disorders accessing mental health services (n=31)	6-weekly 70-minute group drumming sessions	Significant (wellbeing increased)		High
Fancourt et al., 2016 ¹⁶²	Patients using mental health services (n=45)	10 weekly 90-minute group drumming sessions	Significant (wellbeing increased)	Significant (wellbeing increased)	High
Fancourt et al., 2019 ¹⁶³	Family carers of people with cancer (n=62)	12 weekly 90minute choir sessions	Significant (wellbeing increased)	Significant (wellbeing increased)	High
Glenister, 2017 ¹⁶⁴	Youth in challenging circumstances referred from mental health services, social services or education sources (separate sample to 164) (n=35)	Noise Solution: 10x weekly 2 hr sessions pairing youth with informal music producers for one-to- one project-based tutoring, centred around the use of music technology	Significant (wellbeing increased)		High
Margrove, 2015 ¹⁶⁵	Students studying at Anglia Ruskin University (n=7)	Open Arts: Weekly 2hr sessions for 12 weeks consisting of a variety of visual arts classes	Not significant		Moderate
Margrove et al., 2013 ¹⁶⁶	Individuals with mental health needs (n=58)	Open Arts: Weekly 2hr sessions for 12 weeks consisting of a variety of visual arts classes	Significant (wellbeing increased)	Significant (wellbeing increased)	Moderate
Nevay et al., 2019 ¹⁶⁷	Community-dwelling adult females (n=15)	Crafting connections for wellbeing using e- textiles: Single textile-based workshop to construct 3D interactive birds	Significant (wellbeing increased)		Moderate
Poerio & Totterdell, 2020 ¹⁶⁸	Older community-dwelling adults (n=94)	Single audiobook listened to via MP3 player over a 4-week period	Not significant	Not significant	High

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Ribbans & Glenister, 2019 ¹⁶⁹	Youth in challenging circumstances referred from mental health services, social services or education sources (separate sample to 169) (n not reported)	Noise Solution: 10x weekly 2 hr sessions pairing youth with informal music producers for one-to- one project-based tutoring, centred around the use of music technology	Significant (wellbeing increased)		Moderate
Secker et al., 2011 ¹⁷⁰	People at risk of mental ill health and isolation as well as those in recovery from mental health problems. (n=107)	Open Arts: One of 29 introductory arts courses lasting 10-15 weeks and involved using a variety of media	Significant (wellbeing increased)		High
Sumner & Hughes, 2021 ¹⁷¹	Patients/service users, their families or carers who are experiencing mental health challenges (n=33)	See with Fresh Eyes: 8 in-person half-day sessions on mindful photography techniques; shifted to 4 weekly 2 hr online sessions during the pandemic	Not tested		Moderate
Tribe et al., 2021 ¹⁷²	People with low mood and anxiety (n=55)	Creativity in Mind: Participants were part of a WhatsApp group for 30 days, facilitated by a trained artist, where they took part and shared a daily creative challenge (e.g. draw your mood, create a balance sculpture, etc.)	Significant (wellbeing increased)		High
van de Venter & Buller, 2014 ¹⁷³	People with mild-to-moderate mental health problems (n=44)	Arts on Referral: 20 week regular art sessions incorporating a variety of arts activities (e.g. painting, textiles, music, photography and film)	Significant (wellbeing increased)		High
Wilson et al., 2017 ¹⁷⁴	Individuals with mental health needs (n=74)	Open Arts: Weekly 2hr sessions for 12 weeks consisting of a variety of visual arts or drama classes or a 6 week percussion course	Significant (wellbeing increased)		Moderate
Culture					
Ecorys, 2017 ¹⁷⁷	Residents of villages and towns in North East England (n not reported)	Bait: Programme of activities aimed at increasing participation in arts and culture. Part of Creative People and Places (CPP) programmes funded by Arts Council England.	Not tested		Low
Heaslip & Darwill, 2018 ¹⁷⁶	Individuals with long-term mental health needs (n not reported)	Human Henge: 10 half day sessions of participant-led activities coupled with experts, carers, support workers, and contributors from a range of cultures who together explored prehistoric landscapes in the Stonehenge and Avebury World Heritage Site	Not tested		Moderate
Khan et al., 2017 ¹⁷⁵	Young African Caribbean men in Birmingham (n=70)	Up My Streets: Three projects: 1) workshops and activities for young men to explore their culture and heritage and lead a local social media campaign to promote resilience, empathy, and aspiration; 2) a homelessness charity organised workshops and visits on Black History, personal development and resilience; 3) a theatre company offered drama workshops	Significant (wellbeing increased)		Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Environment					
Beishon et al., 2016 ¹⁷⁸	Community residents, often from deprived backgrounds or with physical/mental health problems, can self-refer or are referred by local health, social care and voluntary sector partners (n not reported)	Green Gym: Ongoing weekly 3-4 hour activity at a local community facility (e.g. park) consisting of a warm-up, cool-down, and gardening and land management activities	Not tested		Moderate
Chiumento et al., 2018 ¹⁷⁹	Children experiencing behavioural, emotional, and social difficulties (n=31)	A Haven of Green Space: In monthly 2-hour sessions over 6-months, the children designed a green space facilitated by two horticulturists and a Child and Adolescent Mental Health Service psychotherapist	Not significant		Moderate
Farrier et al., 2019 ¹⁸⁰	Male prisoners in 12 prisons in North East England (n=135)	Greener On the Outside of Prisons (GOOP): Depending on prison type and prisoner category, individuals participated in various horticultural and environmentally focused projects and training courses	Not tested		Low
Kearns et al., 2020 ¹⁸¹	Adults living in areas undergoing regeneration in Glasgow. (n=1398)	A regeneration programme carried out across 15 communities in Glasgow. Intervention area types included: i) regeneration area; ii) Wider surrounding area; iii) High-rise Housing Improvement Area; iv) Low-rise Housing Improvement Area	Not significant		Moderate
Maund et al., 2019 ¹⁸²	Individuals diagnosed with anxiety and/or depression (n=18)	The Wetland NBI Design: 6 weekly 2hr sessions engaging participants with nature with different activities each week.	Significant (wellbeing increased)		Moderate
Sumner et al., 2020 ¹⁸³	Outpatients with cardiovascular health conditions currently receiving care (n=19)	Nature on Prescription: 8 week course (~5 hours/week) of a variety of nature-based activities, centring walks and wild outdoors programmes (including practical conservation), incorporating education regarding cardiac health.	Significant (wellbeing increased)		Moderate
Wilson et al., 2011 ¹⁸⁴	Patients referred from secondary or tertiary mental health services in the Greater Glasgow and Clyde area (Scotland) (n=77)	Branching Out: 12-weeks of ~3 hrs of group ecotherapy (e.g. conservation, bushcraft, environmental art, construction, exercise) in outdoor woodland settings.	Not significant		High

Appendix I4: Description of studies: Physical health promotion

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Physical activity					
Connolly et al., 2020 ¹⁸⁵	Premenopausal women physically inactive women (n=24)	Participants completed a 12-week physical activity programme, delivered via DVD, where they completed 15-minutes of exercise 3 times a week. The exercise consisted of low-, moderate-, and high-intensity physical activity.	Significant (wellbeing increased)	Not significant	High
Corepal et al., 2019 ¹⁸⁶	Adolescents from five schools in Belfast, Northern Ireland (n=213)	The StepSmart Challenge: 22-week intervention using gamification strategies (schools participated in a pedometer-based competition to encourage and support physical activity behaviour change)	Not tested	Not tested	High
France et al., 2016 ¹⁸⁷	Individuals affected by cancer and other long-term health conditions as well as those from specific health inequality groups (e.g. older adults, black and minority ethnic communities, low income). (n=232)	Walking for Health: England-wide network of schemes that delivers free, group-walks that are open to all and 10-90min in duration at least once monthly	Significant (wellbeing increased)		High
Gray et al., 2020 ¹⁸⁸	Adults living in care homes and supported housing environments (n=70)	Cycling Without Age: Participants go out on specially designed trishaws piloted by trained volunteers, each ride lasted for 40-60 minutes	Significant (wellbeing increased)	Significant (wellbeing increased)	High
Hadley et al., 2020 ¹⁸⁹	Patients with Parkinson's disease and their partners or carers (n=40)	Participants (and some of their carers/partners) completed a single 30-40min dance class specifically designed for people with Parkinson's.	Significant (wellbeing increased)		Moderate
Harris et al., 2018 ¹⁹⁰	Residents of Stranraer, Scotland (no further description) (n=167)	Beat the Street: Over a 6-week period, individuals accrued points and prizes by scanning a card at consecutive electronic boxes (at half-mile intervals) within an hour. This was followed by 7-months of directing participants into suitable physical activity opportunities.	Significant (wellbeing increased)		High
Henderson et al., 2014 ¹⁹¹	Primarily individuals referred from primary care/mental health providers and voluntary sector organisations (e.g. local Mind groups) (n=96)	Imagine Your Goals: Football-based exercise programme that ran during the 2010-11 season (frequency not stated)	Not significant		High
Hunter et al., 2018 ¹⁹²	Employees of public sector organisations in Northern Ireland (n=853)	The Physical Activity Loyalty Scheme (PAL): Over a 6-month period, individuals accrued points and prizes by carrying their PAL key fob within 25m of WIFI beacons placed within 2km of their work place.	Not tested	Significant (wellbeing increased)	High

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Kay et al., 2022 ¹⁹³	Navy, army and RAF who are either wounded, injured or sick with mental or physical health-related illness (separate sample to 196) (n=759)	Battle Back Multi-Activity Course: 5 day residential course consisting of multi-sport activities and self-management education aimed to encourage and equip individuals to improve their mental and physical health	Significant (wellbeing increased)		Moderate
Lewis et al., 2017 ¹⁹⁴	Older harder-to-reach men in North West England (n=80)	The Active Rovers: Mixed exercise programmes (e.g. football, yoga, Tai Chi) delivered on a weekly basis at Prenton Park, the home of Tranmere Rovers FC	Significant (wellbeing increased)		Moderate
Malcolm et al., 2013 ¹⁹⁵	Participants referred by mental health services, social services, local mental health organisations or an educational authority (n=2663)	MIND and Rethink Mental Illness Exercise Project: 28 community-based exercise projects around England; lasting 3-12 months, each project consisted of weekly activities (e.g. gardening and conservation, gym classes, walking)	Significant (wellbeing increased)		Moderate
Peacock et al., 2019 ¹⁹⁶	Navy, army and RAF who are either wounded, injured or sick with mental or physical health-related illness (separate sample to 193) (n=971)	Battle Back Multi-Activity Course: 5 day residential course consisting of multi-sport activities and self-management education aimed to encourage and equip individuals to improve their mental and physical health	Significant (wellbeing increased)		Moderate
Tew et al., 2017 ¹⁹⁷	Physically inactive older adults (n=47)	10x 75-minute Yoga sessions over 12-weeks, delivered by trained Yoga teachers	Not tested	Significant (wellbeing increased)	High
Walker et al., 2021 ¹⁹⁸	People with obesity, type 2 diabetes or pre-diabetes (n=17)	Participants attended a Zoom-delivered, online weight loss and health promotion intervention, delivered in 6x 90-minute sessions over 10-weeks	Significant (wellbeing increased)		Moderate
Health promotion (diet or mixed)					
Newbury-Birch et al., 2014 ¹⁹⁹	Year 10 pupils in North East London (n=107)	Participants received a brief alcohol screening intervention, delivered by school learning mentor. Two interventions were tested: 1) Participants received 30-minute brief interactive session involving structured advice about alcohol harms and motivational interviewing	Not tested	Not tested	High
	as above (n=75)	2) included everything delivered in intervention 1 plus a 60-minute session involving family members	Not tested	Not tested	as above
Giles et al., 2019 ²⁰⁰	Year 10 pupils who screened positively on a single alcohol screening question (n=401)	30-minute one-to-one structured brief intervention with a trained learning mentor and an alcohol leaflet.	Not tested	Not significant	Moderate
Johnson et al., 2017 ²⁰¹	Local community-dwelling individuals recruited from media publicity, GP 'referral' and posters (n=481)	One Body One Life: 12 weekly 90-min sessions consisting of 45min of exercise and a 45-min workshop on healthy eating	Significant (wellbeing increased)		Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Callaghan et al., 2019 ²⁰²	People under community supervision in the criminal justice system (n=120)	STRENGTHEN: Person-centred health trainer support in one-to-one sessions for up to 14 weeks, either in person or via telephone. Health trainers aimed to empower participants to make healthy lifestyle changes (particularly in alcohol use, smoking, diet and physical activity)	Not tested	Not tested	High

Appendix I5: Description of studies: Other

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Funding					
CLES Consulting & New Economics Foundation, 2013 ²⁰³	Community-dwelling adults; some portfolios targets those with multiple and complex needs, young people, older people and early intervention in pregnancy and first years. (n=305)	Wellbeing Programme and Changing Spaces Programme: Part of 17 Big Lottery wellbeing programme funding portfolios of programmes across England that aimed to create healthier lifestyles and improve community wellbeing via physical activity, healthy eating, mental wellbeing	Significant (wellbeing increased)		High
Scott et al., 2014 ²⁰⁴	Community-dwelling adults; some portfolios targets those with multiple and complex needs, young people, older people and early intervention in pregnancy and first years. (n not reported)	Wellbeing 2: Funding to 14 portfolios across England that aimed to create healthier lifestyles and improve community wellbeing via physical activity, healthy eating, mental wellbeing	Not tested		Moderate
Age UK, 2013 ²⁰⁵	Older adults (n=71)	Fit as a Fiddle: 2 national projects and 24 regional projects, delivered by over 200 organisations aiming to broaden and increase the opportunities for older people to undertake physical activities and improve their eating habits, contributing to an overall improvement in mental health.	Significant (wellbeing increased)		Moderate
Wigfield et al., 2015 ²⁰⁶	Older adults living with at least one long term health condition (n=840)	Fit for the Future: Part of the Fit as a Fiddle Funding portfolio and delivered by 11 Age UK partners. Participants are matched with a volunteer who develops a tailored personal plan and activities to meet their needs.	Significant (wellbeing increased)		High
Scanlon et al., 2021 ²⁰⁷	Young people attending youth services in six regions across England (no individual level description) (n=813)	Youth Investment Fund grants: Youth Investment Fund investment across 6 regions of England to youth organisations that provide frontline, open access youth services in the targeted communities across England	Significant (wellbeing increased)	Significant (wellbeing increased)	Moderate
Day et al., 2020 ²⁰⁸	Up to 100 schools, colleges and Children and Young People's Community Organisations (CYPCOs) with children and young people as the main intervention target (n=322)	Peer Support for Mental Health Pilots: Funding programme delivered by up to 100 schools, colleges and Children and Young People's Community Organisations (CYPCOs) to set up and deliver bespoke peer support interventions	Not significant	Not significant	Moderate

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Ministry of Housing, Communities and Local Government, 2019 ²⁰⁹	Parent/carer of a family that is experiencing one of following problems: worklessness, poor school attendance, mental and physical health problems, crime and anti-social behaviour, domestic violence and abuse or children in need of help and protection (n not reported)	Troubled Families Programme: Funding (£920 million) to local authority areas to deliver programmes focused on a high-level theory of change including: i) whole family approach; ii) multi-agencies involved; iii) early intervention; iv) focusing on outcomes and data	Not significant		Moderate
Targeted medical					
Acton et al., 2016 ²¹⁰	Individuals with low vision who are eligible for the Sight Cymru visual rehabilitation service (n=67)	1 to 11 home visits to assess needs of individual with low vision, and offer training and support to improve visual function outcomes	Not significant	Not tested	High
Basu et al., 2018 ²¹¹	Parents/carers/therapists of infants with perinatal stroke or unilateral haemorrhagic parenchymal infarction (n=20)	Early Therapy in Perinatal Stroke (eTIPS): Parents were taught to change the environment around the infant (for first 6-months of life) to promote opportunities for active use and stimulation of the potentially affected side of the body	Not significant		Moderate
Elnazer et al., 2021 ²¹²	People with a primary diagnosis of an anxiety disorder (n=27)	Celecoxib augmentation (typically used to treat pain) for 6-weeks alongside current medication	Significant (wellbeing increased)	Not significant	Moderate
Evans et al., 2018 ²¹³	Older euthymic adults with and without cardiovascular risk factors and healthy younger adults (n=120)	Transcranial random noise stimulation (tRNS): Participants attended 2 sessions between 2 and 14 days apart where they received transcranial random noise stimulation or sham (control) intervention	Not significant	Not significant	Moderate
Osborn et al., 2018 ²¹⁴	Patients with severe mental illness and raised cholesterol (n=327)	The Primrose Intervention: Weekly or fortnightly appointments to agree goals to lower cardiovascular disease risk (e.g. Improving diet, physical activity, reduced alcohol, quitting smoking, adhering to statins) with a nurse for 6 months	Not tested	Not significant	High
Steel et al., 2020 ²¹⁵	Adults with a clinical diagnosis of schizophrenia and at least a mild level of depression (n=100)	Positive Memory Training (PoMeT): 8-12 individual sessions of positive memory training over a 3-month period	Not significant	Not significant	High
Stuttard et al., 2021 ²¹⁶	Individuals with severe and profound hearing loss who were first time applicants for a hearing dog (n=112)	Hearing Dogs for Deaf People: Participants received a hearing dog earlier than the control group (immediate vs 6-36 months)	Not tested	Significant (wellbeing increased)	High
Other (professional training)					

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Slade et al., 2015 ²¹⁷	Patients with psychosis who were receiving care from a community-based adult mental health team (n=403)	REFOCUS: 1 year behavioural and interpersonal intervention delivered to community mental health teams to change the way they deliver care. Staff participating in intervention were offered 12hr of training in personal recovery, 16hr of training in recovery coaching, 6 externally facilitated team-manger reflection groups, 6 internal team reflections and the use of a reflective practice tool	Not significant	Not significant	High
Webber et al., 2019 ²¹⁸	People with a mental health condition or a learning disability (n=116)	Connecting People Intervention: Participants' healthcare practitioners (e.g. social care workers, nurses, psychologists, occupational therapists, psychiatrists) received a 2-day training course on how to more effectively help participants develop social networks	Significant (wellbeing increased)		High
Stansfeld et al., 2015 ²¹⁹	Employees and managers of an NHS Mental Health Trust (n=284)	Managing Employee Pressure at Work: An e-learning health promotion programme focusing on the 6 management standards domains (change, control, demands, support, relationship, role) delivered in 6 modules over a 3 month period	Not significant	Not significant	High
Mental health promotion (recovery college)					
Ebrahim et al., 2018 ²²⁰	Students at a Recovery College aiming to enhance independence in those with mental health problems in Northern England (n=56)	Education-based mental health resources, utilising practitioner and lived experience expertise through courses at a Recovery College	Significant (wellbeing increased)		Moderate
Mental Health Foundation, 2016 ²²¹	Individuals with complex mental health needs (n=36)	Progression Together: Personalised residential service consisting of three stages over 2.5 year period that progress from intensive phase of recovery and support to independent living	Significant (wellbeing increased)		Moderate
Harrison et al., 2017 ²²²	Individuals with substance misuse problems (n=10)	Recovery central programmes that supports the development of abstinence-based recovery communities in four areas (Birmingham, Gloucester, London, Durham) Give It Up	Not tested		Moderate
	as above (n=12)	The Hub: as above	Not tested		as above
	as above (n=20)	Progression and Choices: as above	Not tested		as above
	as above (n=11)	Clean & Sober Living: as above	Not tested		as above
Lamb et al., 2021 ²²³	Individual in mental health crises (n=431)	Acute day unit (4 different services across 4 trusts)	Not tested		Moderate
	as above (n=241)	Crisis resource team (4 different services across 4 trusts)	Not tested		as above
Wilson et al., 2019 ²²⁴	Students attending the South East Essex Recovery College (n=25)	South East Essex Recovery College: Uses a psychoeducational/vocational training and social/peer support approach to support people through mental health recovery and support transition from dependency to self-management	Significant (wellbeing increased)		Moderate
Other					

Reference	Participants	Intervention details	Effect of intervention on wellbeing		Level of confidence
			Pre- vs. Post	Compared to control	
Collis & Eggers, 2020 ²²⁸	Students in the Faculty of Economics and Business at a large European university (n=122)	9 week period of restricted social media use via a mobile app that blocks Facebook, Instagram and Snapchat after 10minutes of daily use	Not tested	Not significant	High
Connect Centre University of Central Lancashire, 2021 ¹³⁵	Female survivors of domestic violence and abuse (n=77)	Roadmap Programme: VOICES: Framework, training and coaching for frontline domestic and violent abuse practitioners. Compared to normal practices, it provides a new assessment framework, training and planning tools that have a gender-neutral, strengths-based, needs-led, trauma informed approach.	Not significant		Moderate
Elphick et al., 2019 ²²⁶	Parents of children with i) sleep problems and ii) one of Attention Deficit Hyperactivity Disorder or Looked After/Adopted children (n=56)	Sleep education and behavioural sleep programme delivered via a 3hr workshop or a 1:1 clinical visit, followed by an individual consultation and development of an individualised sleep programme	Significant (wellbeing increased)		High
Evans et al., 2019 ²²⁹	People with a dementia diagnosis living at home (n=77)	Dementia Dwelling Grant (DDG): Provision of small-scale aids and home adaptations including key locators and clock, touch bedside lights and bath mats	Not significant		Moderate
Gensler & the Helen Hamlyn Centre for Design, 2016 ²²⁷	Employees in a London-based organisation (n=27)	The Participatory Design Project: 3 employee teams were supported to create and test design solutions for their workspaces through a co-design workshop and design installations in their offices.	Significant (wellbeing increased)	Not tested	Moderate
Naruse et al., 2019 ²²⁵	Health but stressed couples (n=42)	3 consecutive weekly 1 hour couples massage classes	Significant (wellbeing increased)	Not significant	High